

MAY 1966 -- 50¢

RAILROAD MODEL

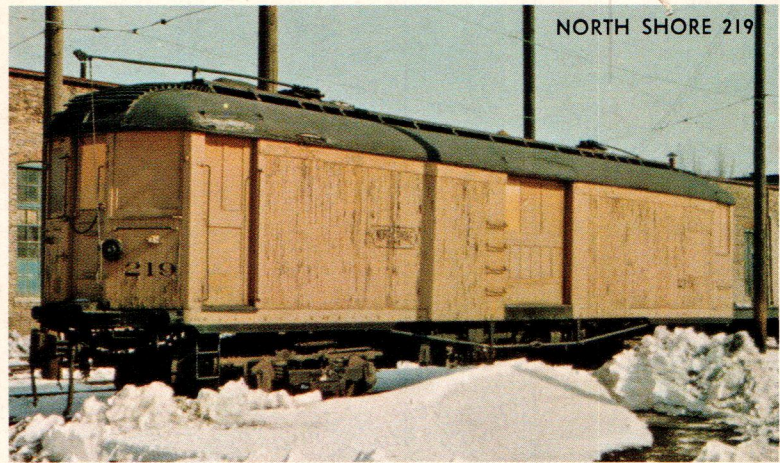
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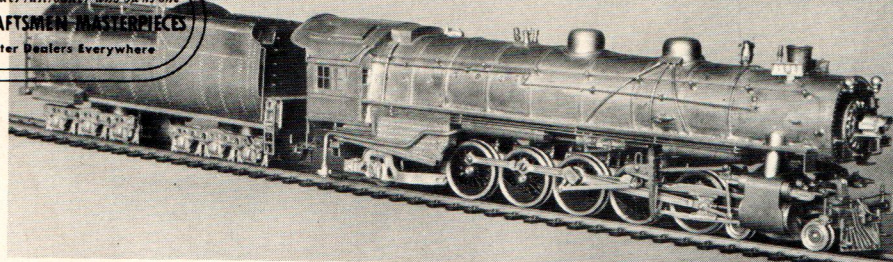


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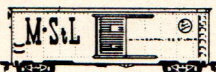
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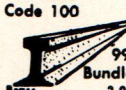
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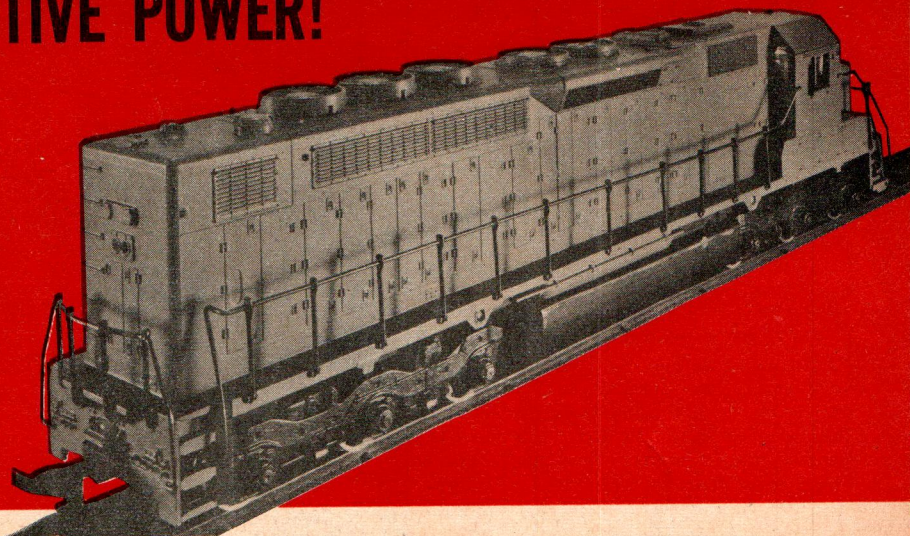
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LET'S TALK ABOUT MOTIVE POWER!

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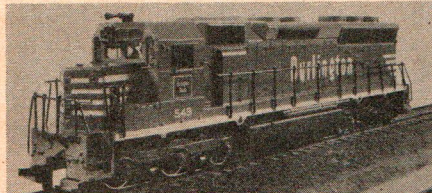
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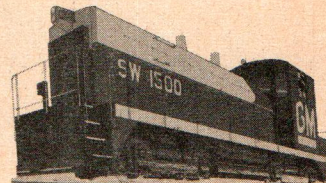
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The GP-35

The Electro-Motive GP-35 is one of the most popular freight locomotives in operation today. ATHEARN is now bringing the unit to you in HO scale. All eight wheels powered, new POWER-FUL motor, with new Floating Power installation, usual superb detailing.

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ATHEARN

11929 S. Western Ave.

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NOTES ON AN OLD TIMETABLE

ONE OF the nicest guys we ever met in model railroading loved nothing better than diddling around with a short length of narrow gauge track. Model railroading, to him, was messing around with the potentialities of narrow gauging. He could have built a dilly of a layout if he would have put his mind to it. He has still never gotten a layout in operation.

Another modeler we know is a steam locomotive enthusiast from way back, and he can tell you how many rivets are found on the cab of this loco or that. He has a number of locos under construction and won't have anything to do with commercially available locos because he considers them all wrong.

We could go on to cite the layout expert who is now in his 49th carefully-engineered, perfect-layout plan, none of which he has ever built.

Most of these modelers would lambast another buddy of ours who happens to like his trains big and ready-to-run—which means he's an unabashed tinplater. This character chose the easy way out, ending up with that rarity in this hobby: a completed layout boasting scenery, good operation, and automatic knuckle couplers albeit a bit oversized. His admiration for the diddler, craftsman, and engineer are unbounded and his only regret is that their layouts don't run.

Johnny Liebermann, of *Main Line Models*, summed it up well at lunch recently, telling how he had visited a layout in his area with a friend, remarking after they had left what a swell scale pike they had just visited. "But, Johnny," said his friend, "that layout was tinplate!"

All of which is by way of admonition that there has never been a 100% scale model railroad. The very nature of the hobby demands that the modeler take certain liberties with scale. We shorten passenger cars and locos. We use horn couplers and brass rail. Our curves are far sharper than most prototypes. Rail is oversized and so are flanges. Concessions have to be made right down the line. The more concessions we make, the faster we can get trains moving.

Perhaps the reason the diddler and his cohorts never get their pikes in operation is because they're afraid to make the decision on where to draw the line of their interpretation as to what constitutes a good scale layout. I'm sure all RMC readers would love to have a pike that is the equal of a John Allen or Paul Larson. Isn't it better to have a completed layout with scenery that is a good compromise to absolute scale than a layout that is inoperative and incomplete, hopelessly bogged down in a welter of unproven theories relating to full scale, that require so much additional scratch building that there is little or no hope of ever getting it completed? To quote another buddy, "Enjoy, enjoy!"

MAY 1966

Vol. 34 No. 12

RAILROAD MODEL

CRAFTSMAN

Including TOY TRAINS combined with ELECTRIC TRAINS and HOBBY RAILROADING, MINIATURE RAILROADING, MODEL & RAILWAY NEWS, THE O GAGER, and THE MODELMAKER (Est. 1924) Magazines.



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COVER

Brilliantly painted in new Canadian National colors, Central Vermont's GP-7 was photographed at Waterbury, Vermont in 1963. More GP-7 and GP-9 data on page 28 . . . North Shore's bright orange box motor 219 no longer serves the Chicago-Milwaukee area but you'll find plenty more interurban photos and information on page 16. Kodachromes by Hal Carstens.

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MAY, 1966

SAFETY VALVE



Likes Adams' Trestle, But!

Your March cover has a nice looking engine and a nice looking trestle, and it's a nice looking photo BUT approximately 575 tons of loco, tender, coal and water on a high, spindly wooden trestle is hardly prototypical practice, do you think? I could see a Consolidation up there but never an Articulated.

Sam Snelling
256 Ovington Av.
Brooklyn, N. Y. 11209

Aw, c'mon Sam The real roads don't stuff electrical motors in their steam boilers, or run Articulateds on 18" radius curves, or use horn couplers. And we'd bet if it was your trestle, you'd do the same thing. But prototypically, we will acknowledge that you do have a point. Ed.

Letter Spacing Important

Among recent articles of special was Whit Towers' contribution on making signs (RMC March 1966 issue). Whit didn't go into the importance and need for proper spacing of lettering. Having been in the sign and display business for twenty years may I point out factors relative to the situation. Type setting mechanically spaces the letters while the sign maker must employ the principals of optical balance between letters. It would take days to prepare a comprehensive article with necessary illustrations to show the 676 possible combinations obtainable with our 26 letter alphabet.

Briefly, the pitfalls to be avoided in creating optical balance are the (a) equal spacing of all letters regardless of their contour, and (b) unequal spacing of, in particular capitals having one or more vertical strokes. Otherwise, Whit did a great job.

P. M. Wegner
Wegner Display Service
803 South Duluth Ave.
Sioux Falls, S. D.

ACL Hopper Car Coloring

We find the correct colors of the ACL Hopper Car, RMC Feb. '66 issue, as follows: Body, rose pink; lettering, deep violet; trucks, emerald green; brake wheel, chrome orange. We thought your readers might be interested in the prototype colors.

Wayne F. Riggle
Regal Kits
706 Colfax Ave.
Benton, Harbor, Mich.

In the good old Lionel tradition of 1932. Ed.

RAILROAD MODEL CRAFTSMAN

Electric Passenger Car Heating

I would take exception to the answer concerning steam heated passenger cars in your Feb. '66 Trouble Shooting, that electrically heated systems are too expensive.

The Chicago & Northwestern operates several bi-level trains which are electrically heated and air-conditioned. To do it, the C&NW modified four EMD E-8 cab units by pulling their steam generators and installed skid mounted AC power packages consisting of a 575 hp. Cummins diesel engine plus a Marathon 480 volt, 60 cycle alternator rated at 300 kilowatts. The boiler water tanks were retained for use as diesel fuel tanks, thus doubling the E-8's fuel capacity from 1100 to 2200 gallons. As protection, the C&NW similarly rebuilt a pair of F-7 freight cab units.

Incidentally, the C&NW has never favored illuminated engine numbers, in steam days or now, and took advantage of the E-8 modification to blank out the units' number slots with unique effect.

Reasons given by the C&NW for using AC power include lowered power transmission losses, reduced in each car by transformers, not possible with DC; larger choice of readily available components; brushes are eliminated on motors used for exhaust fans, compressors, and air

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conditioning, cutting maintenance costs; and elimination of engine-generator sets on the bi-level cars, reducing first cost, long term maintenance, and underbody vibration and noise.

Jerome Russart
Rte. 2
Sheboygan, Wis.
53081

Grant Industries, of Canada

While browsing through some back issues of RMC, I happened across a photo of a Grant Industries of Canada Budd stainless steel sleeper. I understand Grant went out of business some years back. Whatever became

of their dies and tooling? I've tried several times to lay my hands on just one of these cars but to no avail. Can anybody help?

A1C Rodman D. Bourne
AF 19663505
CMR Box 795
Larson AFB, Wash.

Few Grant cars were ever produced Perhaps some reader is hep as to the whereabouts of the tooling. Another reader would like to know the whereabouts of the Megow passenger truck dies. Ed.

Likes Our Plastic Bags

A compliment on your plastic mailing bags for subscription copies. They make good covers for material that is handled frequently. The only problem is how to remove the address label which really sticks to the plastic.

Eugene Kreissig
1700 Melton
Birmingham, Mich.
48008

The trouble we had developing a glue which would hold the label to the bag and he complains! Anybody have an answer? Ed.

Rivarossi Car Lighting

Your report on our deluxe passenger cars (RMC Dec. 1965) gave us great pleasure. However, we would like to emphasize some points which should also be brought to the attention of your readers.

All of our cars have only one bulb and the light is spread through with a special prism. Also, the bodies are not spot cemented but have six small hooks so as to permit the customer to remove the body and make changes inside the cars, if desired. Very possibly, the models you have were pre-production samples.

Rivarossi, S. p.a.
Como, Italy

O Gauge Sounds Off

Couldn't you include at least one O gauge locomotive in your Loco Builders Photo series each month? An engine that is currently available? Also, why couldn't you have one or two pages devoted strictly to O gauge. We O gaugers feel slighted.

Reed Kinert
2036 E. Alvarado St.
Fallbrook, Calif.

During the past few years we have presented many currently in production O scale locos, from All Nation, Max Gray, Central Loco Works, and other producers. Any time the manufacturers come up with new engines, or engines not yet covered in the series, we'll be happy to print the data they submit, in any scale from O down to N. Ed.

Piggy Back Hump Is Easy To Model

Some months ago in RMC containing plans for the 89 ft. flat car, you mentioned that getting the prototypical hump in the model would be challenging. If you build the car with a hollow center sill (as in the Quality Craft Tri-Level in HO), and then use a large soldering iron to melt lead or solder into the cavity, you will find that the heat will cause the model to warp upward very slightly.

Wayne F. Riggle
Regal S Gauge Kits
706 Colfax Ave.
Benton Harbor,
Mich.

Whopper Hopper

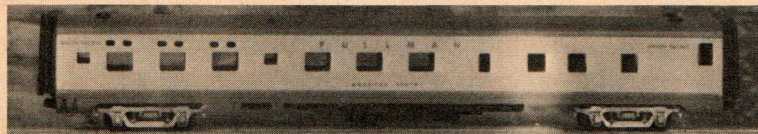
I built your ACL Whopper Hopper, shown in the Feb. '66 RMC, using sheet wood and wood shapes. Trucks are Kemtron Buckeyes with brake cylinders glued on, since I couldn't find any like the prototype and just don't have the time to build them up. I enjoy puttering around, found the results pleasing, and enclose a print so that you may share my pleasure. Keep up the good work.

C. Edgar Hires
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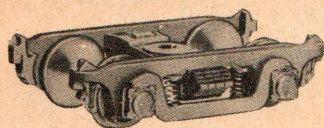
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Well over a decade has passed since Bert Sas of *Model Tramway System*, P. O. Box 111, Wilton, Conn. 06897, first made himself known at the RMC offices. MTS then offered lead base trolley kits, fine then, but crude by today's standards. MTS is now offering HO trolleys, mostly city types, with detail and features undreamed of at that time. The MTS catalog is a must to any HO tractioneer at \$1.00.

Some of the former Westchester Models line of HO railroad structures are back in production under the *Vicount Model Railroad Products Co.* label. Initial releases are the Freight Station at \$1.95 kit, Butterfly Sheds at 75c each per kit, Terminal with two butterfly sheds at \$4.95 kit, and the famous 3 stall roundhouse at \$5.75 per kit with extra stalls at \$1.00 each. This roundhouse can be made in any size from 3 to 18 stall. Viscount is located at P. O. Box 42 South Station, Yonkers, N. Y. 10705.

Jack Campbell (not to be confused with Campbell Scale Models, of Tustin, Calif.), 2621 Glendale Blvd., Los Angeles, Calif. 90039, is now stocking eleven different lines of foreign HO and N gauge equipment, from various countries. Jack is also the guy to contact for information on converting Lionel Trainmaster and GP-9 diesels to full scale operation, since Jack also runs *Lobaugh Scale Models*. Yes, Lobaugh is still very much in business we understand.

An excellent source of hard to get, quality tools for model railroading is available from *Glenmore Hardware Co.*, 181 Greenwich St., New York,

N. Y. 10007. Especially recommended are their rifferler files and imported Swedish and German pliers in a wide variety of sizes and shapes. They cost somewhat more than ordinary tools but should last a lifetime with reasonable care. Veteran modelers know that award winning models can only be built with a good selection of proper tools.

Harbern Model Supplies, 661 Simpson Ave., Winnipeg 15, Manitoba, has a new 46 page spiral bound 9x12 size catalog at 35c listing Canadian made kits plus other HO supplies available from the Canadian firm. Prices are given in Canadian funds. Its the biggest all-Canadian catalog we've seen yet.

An Alco 2000-2250 hp. passenger diesel B unit is now offered by *Midwest Traction Lines, Inc.*, Box 23, Marion, Ohio 43302, at \$19.95, ready for Hobbytown flywheel power. Midwest's catalog lists at 25c.

Champion Decals, Box 1178, Minot, North Dakota 58701, has come up with an 80 page freight car lettering guide book, 8 1/2 x 11 in size, at \$2.75, which is a dandy. Over 600 different cars are listed, along with color schemes to make the job even easier. Both old and new schemes are shown in many instances, and some 208 different railroads and car lines are included. A lot of research and hard work went into this one.

Lees Hobby Industries, 2094G 5th Street, East Meadow, N. Y. 11554, offers a new 100 page railroad catalog at \$1.00, refundable on first \$5.00 order.

Correspondence recently from the heavy electrification boys bemoaning the lack of big plastic electric locos at diesel prices. Chances are that the individual styling inherent in early electrics will preclude their ever being offered in plastic, possibly excepting such locos as the GG-1, since they are a bit too stylized for local areas to have nationwide appeal. But electrics are available to you fellows who have saved your money. *Kaw Valley*, Box 155, Hays, Kansas, for example, has a beauty of a New York Central S-class 2-8-2 electric in brass at \$42.50. This is the engine made famous years ago by the big tinplate toy train producers such as Lionel, Flyer, Ives, Dorfan, Bing, and many more. Ives probably came closest but the *Kaw Valley* loco is the first really scale production model ever offered. Quantities are limited.

Newer HOers often start off these days with a train set, packed with Snap Track. The question arises as to whether this track has to be junked when they start their first real permanent pike and the answer is no. Snap Track is perfectly at home on any HO layout using code 100 rail,

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MINITRIX Catalog 35c

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VIKING Catalog

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5016 FMA Erie	5.95	5318 Burlington Rte	1.98	5473 Erie Lackawanna	2.49	5638 Penna Observation	3.98	3060 Trn Set W/10 Cars	14.98	2139 German Tank M109	.25
5017 FMA Erie	5.95	5319 Swift	1.98	5474 Erie Lackawanna	2.49	5639 Penna Observation	3.98	3061 Trn Set W/10 Cars	14.98	2140 German Tank M109	.25
5018 FMA Erie	5.95	5320 Duquesne Pkg Co	1.98	5475 Erie Lackawanna	2.49	5640 Penna Observation	3.98	3062 Trn Set W/10 Cars	14.98	2141 German Tank M109	.25
5019 FMA Erie	5.95	5321 Pac Fruit Express	1.98	5476 Erie Lackawanna	2.49	5641 Penna Observation	3.98	3063 Trn Set W/10 Cars	14.98	2142 German Tank M109	.25
5020 FMA Erie	5.95	5322 RKO	1.98	5477 Erie Lackawanna	2.49	5642 Penna Observation	3.98	3064 Trn Set W/10 Cars	14.98	2143 German Tank M109	.25
5021 FMA Erie	5.95	5323 RKO	1.98	5478 Erie Lackawanna	2.49	5643 Penna Observation	3.98	3065 Trn Set W/10 Cars	14.98	2144 German Tank M109	.25
5022 FMA Erie	5.95	5324 RKO	1.98	5479 Erie Lackawanna	2.49	5644 Penna Observation	3.98	3066 Trn Set W/10 Cars	14.98	2145 German Tank M109	.25
5023 FMA Erie	5.95	5325 RKO	1.98	5480 Erie Lackawanna	2.49	5645 Penna Observation	3.98	3067 Trn Set W/10 Cars	14.98	2146 German Tank M109	.25
5024 FMA Erie	5.95	5326 RKO	1.98	5481 Erie Lackawanna	2.49	5646 Penna Observation	3.98	3068 Trn Set W/10 Cars	14.98	2147 German Tank M109	.25
5025 FMA Erie	5.95	5327 RKO	1.98	5482 Erie Lackawanna	2.49	5647 Penna Observation	3.98	3069 Trn Set W/10 Cars	14.98	2148 German Tank M109	.25
5026 FMA Erie	5.95	5328 RKO	1.98	5483 Erie Lackawanna	2.49	5648 Penna Observation	3.98	3070 Trn Set W/10 Cars	14.98	2149 German Tank M109	.25
5027 FMA Erie	5.95	5329 RKO	1.98	5484 Erie Lackawanna	2.49	5649 Penna Observation	3.98	3071 Trn Set W/10 Cars	14.98	2150 German Tank M109	.25
5028 FMA Erie	5.95	5330 RKO	1.98	5485 Erie Lackawanna	2.49	5650 Penna Observation	3.98	3072 Trn Set W/10 Cars	14.98	2151 German Tank M109	.25
5029 FMA Erie	5.95	5331 RKO	1.98	5486 Erie Lackawanna	2.49	5651 Penna Observation	3.98	3073 Trn Set W/10 Cars	14.98	2152 German Tank M109	.25
5030 FMA Erie	5.95	5332 RKO	1.98	5487 Erie Lackawanna	2.49	5652 Penna Observation	3.98	3074 Trn Set W/10 Cars	14.98	2153 German Tank M109	.25
5031 FMA Erie	5.95	5333 RKO	1.98	5488 Erie Lackawanna	2.49	5653 Penna Observation	3.98	3075 Trn Set W/10 Cars	14.98	2154 German Tank M109	.25
5032 FMA Erie	5.95	5334 RKO	1.98	5489 Erie Lackawanna	2.49	5654 Penna Observation	3.98	3076 Trn Set W/10 Cars	14.98	2155 German Tank M109	.25
5033 FMA Erie	5.95	5335 RKO	1.98	5490 Erie Lackawanna	2.49	5655 Penna Observation	3.98	3077 Trn Set W/10 Cars	14.98	2156 German Tank M109	.25
5034 FMA Erie	5.95	5336 RKO	1.98	5491 Erie Lackawanna	2.49	5656 Penna Observation	3.98	3078 Trn Set W/10 Cars	14.98	2157 German Tank M109	.25
5035 FMA Erie	5.95	5337 RKO	1.98	5492 Erie Lackawanna	2.49	5657 Penna Observation	3.98	3079 Trn Set W/10 Cars	14.98	2158 German Tank M109	.25
5036 FMA Erie	5.95	5338 RKO	1.98	5493 Erie Lackawanna	2.49	5658 Penna Observation	3.98	3080 Trn Set W/10 Cars	14.98	2159 German Tank M109	.25
5037 FMA Erie	5.95	5339 RKO	1.98	5494 Erie Lackawanna	2.49	5659 Penna Observation	3.98	3081 Trn Set W/10 Cars	14.98	2160 German Tank M109	.25
5038 FMA Erie	5.95	5340 RKO	1.98	5495 Erie Lackawanna	2.49	5660 Penna Observation	3.98	3082 Trn Set W/10 Cars	14.98	2161 German Tank M109	.25
5039 FMA Erie	5.95	5341 RKO	1.98	5496 Erie Lackawanna	2.49	5661 Penna Observation	3.98	3083 Trn Set W/10 Cars	14.98	2162 German Tank M109	.25
5040 FMA Erie	5.95	5342 RKO	1.98	5497 Erie Lackawanna	2.49	5662 Penna Observation	3.98	3084 Trn Set W/10 Cars	14.98	2163 German Tank M109	.25
5041 FMA Erie	5.95	5343 RKO	1.98	5498 Erie Lackawanna	2.49	5663 Penna Observation	3.98	3085 Trn Set W/10 Cars	14.98	2164 German Tank M109	.25
5042 FMA Erie	5.95	5344 RKO	1.98	5499 Erie Lackawanna	2.49	5664 Penna Observation	3.98	3086 Trn Set W/10 Cars	14.98	2165 German Tank M109	.25
5043 FMA Erie	5.95	5345 RKO	1.98	5500 Erie Lackawanna	2.49	5665 Penna Observation	3.98	3087 Trn Set W/10 Cars	14.98	2166 German Tank M109	.25
5044 FMA Erie	5.95	5346 RKO	1.98	5501 Erie Lackawanna	2.49	5666 Penna Observation	3.98	3088 Trn Set W/10 Cars	14.98	2167 German Tank M109	.25
5045 FMA Erie	5.95	5347 RKO	1.98	5502 Erie Lackawanna	2.49	5667 Penna Observation	3.98	3089 Trn Set W/10 Cars	14.98	2168 German Tank M109	.25
5046 FMA Erie	5.95	5348 RKO	1.98	5503 Erie Lackawanna	2.49	5668 Penna Observation	3.98	3090 Trn Set W/10 Cars	14.98	2169 German Tank M109	.25
5047 FMA Erie	5.95	5349 RKO	1.98	5504 Erie Lackawanna	2.49	5669 Penna Observation	3.98	3091 Trn Set W/10 Cars	14.98	2170 German Tank M109	.25
5048 FMA Erie	5.95	5350 RKO	1.98	5505 Erie Lackawanna	2.49	5670 Penna Observation	3.98	3092 Trn Set W/10 Cars	14.98	2171 German Tank M109	.25
5049 FMA Erie	5.95	5351 RKO	1.98	5506 Erie Lackawanna	2.49	5671 Penna Observation	3.98	3093 Trn Set W/10 Cars	14.98	2172 German Tank M109	.25
5050 FMA Erie	5.95	5352 RKO	1.98	5507 Erie Lackawanna	2.49	5672 Penna Observation	3.98	3094 Trn Set W/10 Cars	14.98	2173 German Tank M109	.25
5051 FMA Erie	5.95	5353 RKO	1.98	5508 Erie Lackawanna	2.49	5673 Penna Observation	3.98	3095 Trn Set W/10 Cars	14.98	2174 German Tank M109	.25
5052 FMA Erie	5.95	5354 RKO	1.98	5509 Erie Lackawanna	2.49	5674 Penna Observation	3.98	3096 Trn Set W/10 Cars	14.98	2175 German Tank M109	.25
5053 FMA Erie	5.95	5355 RKO	1.98	5510 Erie Lackawanna	2.49	5675 Penna Observation	3.98	3097 Trn Set W/10 Cars	14.98	2176 German Tank M109	.25
5054 FMA Erie	5.95	5356 RKO	1.98	5511 Erie Lackawanna	2.49	5676 Penna Observation	3.98	3098 Trn Set W/10 Cars	14.98	2177 German Tank M109	.25
5055 FMA Erie	5.95	5357 RKO	1.98	5512 Erie Lackawanna	2.49	5677 Penna Observation	3.98	3099 Trn Set W/10 Cars	14.98	2178 German Tank M109	.25
5056 FMA Erie	5.95	5358 RKO	1.98	5513 Erie Lackawanna	2.49	5678 Penna Observation	3.98	3100 Trn Set W/10 Cars	14.98	2179 German Tank M109	.25
5057 FMA Erie	5.95	5359 RKO	1.98	5514 Erie Lackawanna	2.49	5679 Penna Observation	3.98	3101 Trn Set W/10 Cars	14.98	2180 German Tank M109	.25
5058 FMA Erie	5.95	5360 RKO	1.98	5515 Erie Lackawanna	2.49	5680 Penna Observation	3.98	3102 Trn Set W/10 Cars	14.98	2181 German Tank M109	.25
5059 FMA Erie	5.95	5361 RKO	1.98	5516 Erie Lackawanna	2.49	5681 Penna Observation	3.98	3103 Trn Set W/10 Cars	14.98	2182 German Tank M109	.25
5060 FMA Erie	5.95	5362 RKO	1.98	5517 Erie Lackawanna	2.49	5682 Penna Observation	3.98	3104 Trn Set W/10 Cars	14.98	2183 German Tank M109	.25
5061 FMA Erie	5.95	5363 RKO	1.98	5518 Erie Lackawanna	2.49	5683 Penna Observation	3.98	3105 Trn Set W/10 Cars	14.98	2184 German Tank M109	.25
5062 FMA Erie	5.95	5364 RKO	1.98	5519 Erie Lackawanna	2.49	5684 Penna Observation	3.98	3106 Trn Set W/10 Cars	14.98	2185 German Tank M109	.25
5063 FMA Erie	5.95	5365 RKO	1.98	5520 Erie Lackawanna	2.49	5685 Penna Observation	3.98	3107 Trn Set W/10 Cars	14.98	2186 German Tank M109	.25
5064 FMA Erie	5.95	5366 RKO	1.98	5521 Erie Lackawanna	2.49	5686 Penna Observation	3.98	3108 Trn Set W/10 Cars	14.98	2187 German Tank M109	.25
5065 FMA Erie	5.95	5367 RKO	1.98	5522 Erie Lackawanna	2.49	5687 Penna Observation	3.98	3109 Trn Set W/10 Cars	14.98	2188 German Tank M109	.25
5066 FMA Erie	5.95	5368 RKO	1.98	5523 Erie Lackawanna	2.49	5688 Penna Observation	3.98	3110 Trn Set W/10 Cars	14.98	2189 German Tank M109	.25
5067 FMA Erie	5.95	5369 RKO	1.98	5524 Erie Lackawanna	2.49	5689 Penna Observation	3.98	3111 Trn Set W/10 Cars	14.98	2190 German Tank M109	.25
5068 FMA Erie	5.95	5370 RKO	1.98	5525 Erie Lackawanna	2.49	5690 Penna Observation	3.98	3112 Trn Set W/10 Cars	14.98	2191 German Tank M109	.25
5069 FMA Erie	5.95	5371 RKO	1.98	5526 Erie Lackawanna	2.49	5691 Penna Observation	3.98	3113 Trn Set W/10 Cars	14.98	2192 German Tank M109	.25
5070 FMA Erie	5.95	5372 RKO	1.98	5527 Erie Lackawanna	2.49	5692 Penna Observation	3.98	3114 Trn Set W/10 Cars	14.98	2193 German Tank M109	.25
5071 FMA Erie	5.95	5373 RKO	1.98	5528 Erie Lackawanna	2.49	5693 Penna Observation	3.98	3115 Trn Set W/10 Cars	14.98	2194 German Tank M109	.25
5072 FMA Erie	5.95	5374 RKO	1.98	5529 Erie Lackawanna	2.49	5694 Penna Observation	3.98	3116 Trn Set W/10 Cars	14.98	2195 German Tank M109	.25
5073 FMA Erie	5.95	5375 RKO	1.98	5530 Erie Lackawanna	2.49	5695 Penna Observation	3.98	3117 Trn Set W/10 Cars	14.98	2196 German Tank M109	.25
5074 FMA Erie	5.95	5376 RKO	1.98	5531 Erie Lackawanna	2.49	5696 Penna Observation	3.98	3118 Trn Set W/10 Cars	14.98	2197 German Tank M109	.25
5075 FMA Erie	5.95	5377 RKO	1.98	5532 Erie Lackawanna	2.49	5697 Penna Observation	3.98	3119 Trn Set W/10 Cars	14.98	2198 German Tank M109	.25
5076 FMA Erie	5.95	5378 RKO	1.98	5533 Erie Lackawanna	2.49	5698 Penna Observation	3.98	3120 Trn Set W/10 Cars	14.98	2199 German Tank M109	.25
5077 FMA Erie	5.95	5379 RKO	1.98	5534 Erie Lackawanna	2.49	5699 Penna Observation	3.98	3121 Trn Set W/10 Cars	14.98	2200 German Tank M109	.25
5078 FMA Erie	5.95	5380 RKO	1.98	5535 Erie Lackawanna	2.49	5700 Penna Observation	3.98	3122 Trn Set W/10 Cars	14.98	2201 German Tank M109	.25
5079 FMA Erie	5.95	5381 RKO	1.98	5536 Erie Lackawanna	2.49	5701 Penna Observation	3.98	3123 Trn Set W/10 Cars	14.98	2202 German Tank M109	.25
5080 FMA Erie	5.95	5382 RKO	1.98	5537 Erie Lackawanna	2.49	5702 Penna Observation	3.98	3124 Trn Set W/10 Cars	14.98	2203 German Tank M109	.25
5081 FMA Erie	5.95	5383 RKO	1.98	5538 Erie Lackawanna	2.49	5703 Penna Observation	3.98	3125 Trn Set W/10 Cars	14.98	2204 German Tank M109	.25
5082 FMA Erie	5.95	5384 RKO	1.98	5539 Erie Lackawanna	2.49	5704 Penna Observation	3.98	3126 Trn Set W/10 Cars	14.98	2205 German Tank M109	.25
5083 FMA Erie	5.95	5385 RKO	1.98	5540 Erie Lackawanna	2.49	5705 Penna Observation	3.98	3127 Trn Set W/10 Cars	14.98	2206 German Tank M109	.25
5084 FMA Erie	5.95	5386 RKO	1.98	5541 Erie Lackawanna	2.49	5706 Penna Observation	3.98	3128 Trn Set W/10 Cars	14.98	2207 German Tank M109	.25
5085 FMA Erie	5.95	5387 RKO	1.98	5542 Erie Lackawanna	2.49	5707 Penna Observation	3.98	3129 Trn Set W/10 Cars	14.98	2208 German Tank M109	.25
5086 FMA Erie	5.95	5388 RKO	1.98	5543 Erie Lackawanna	2.49	5708 Penna Observation	3.98	3130 Trn Set W/10 Cars	14.98	2209 German Tank M109	.25
5087 FMA Erie	5.95	5389 RKO	1.98	5544 Erie Lackawanna	2.49	5709 Penna Observation	3.98	3131 Trn Set W/10 Cars	14.98	2210 German Tank M109	.25
5088 FMA Erie	5.95	5390 RKO	1.98	5545 Erie Lackawanna	2.49	5710 Penna Observation	3.98	3132 Trn Set W/10 Cars	14.98	2211 German Tank M109	.25
5089 FMA Erie	5.95	5391 RKO	1.98	55							

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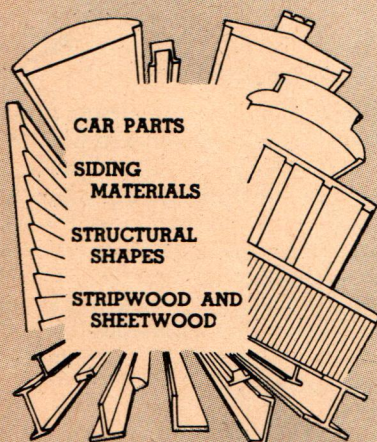
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TIMETABLE

NOTE: Items for RMC TT are welcome but must be received 6-8 weeks before issue in which item is to be inserted. Please print or type.

NMRA Regional Conventions

FORT DODGE, IOWA, May 21, 22. Thousand Lakes Region Spring Rally, Towers Motel (West of Ft. Dodge on Hwy. 20), host Lizard Creek Model RR Club. Info. Robert Vaughn, 1035 N. 24th St., Fort Dodge, Iowa 50501.

INDIANAPOLIS, IND., June 3, 4, 5. Midwest Region Annual Convention, Sheraton-Lincoln Hotel, Indianapolis. Demonstration clinics, layout visits, prototype visits, scratch bldrs. contest, auction, banquet. Info. Walter Barry, 9410 Drake Ave., Evanston, Ill. 60203.

ROCKY HILL, N. J. June 18. Garden State Div. Meet on premises Pacific Southern Rwy., Washington St. (Rte. 518) nr. Rte. 206. Model Displays, op. hump yard, tower control w/remote cabs. Tech. presentations by PS members. Pre-Meet luncheon. Contact Jack Fitzgerald, 26 Shelley Rd., Kendall Park, N. J. 08824. Phone: (201) 297-3641.

INDIANAPOLIS, IND. June 3, 4, 5. Midwest Region "Indiana Sesquicentennial" Spring Convention, Sheraton-Lincoln Hotel. NMRA tape slides, live clinics, contests, fan trip, banquet. Info. F. T. Hughes, 7351 Hawthorne Lane, Indianapolis, Ind. 46250.

EDMONTON, ALTA., CAN. April 30. 6th Div. of P.N.R. NMRA Spring Meet, Bonaventure Motor Hotel, 125th Ave. & St. Albert Trail, Edmonton. Reg. \$6.00, starts 12 noon. Tour of Northern Alberta Rws. Dunvegan Yards Terminal, contest w/Merit Award Judging. Banquet, tour of layouts. Contact J. L. Stevenson, 11619-128 St., Edmonton. Phone 455-4446.

TOLEDO, OHIO. April 29 to May 1. North Central Region Spring Convention, Hotel Hillcrest Toledo. Clinics, exhibits, door prizes, auction, raiettes program, award banquet. Complete pkge. members & guests—\$9.50 ap-

prox.: raiettes \$9.50; children (under 8), \$2.50 or less. Contact John Sherman, 31 W. Clarke Ave., Coldwater, Mich. 49036 or W. N. Konde, 1513 S. Main St., Royal Oak, Mich. Tours to 8 RR facilities.

BIRMINGHAM, ALA. May 6, 7, 8. Southeastern Region Annual Spring Convention. Model contest, movies, clinics, canned and live, layout visits, banquet. Special guests Linn Westcott and John Allen. Info. Jim Thorington, 888 Vermont Lane, Birmingham, Ala. 35226.

RIVERSIDE, CALIF. May 13, 14, 15. PCRNMA Annual Convention. World famous Mission Inn Garden Hotel, host Paradise Valley RR. Info. contact W. R. Babb, 2225 Market St., Riverside, Calif. 92501.

Club Shows

NORTH HALEDON, N. J. April 29, 30, May 1, 6, 7, 8, 13, 14, 15. Model Engineers RR Club of North Jersey 25th Annual Show, 569 High Mtn. Rd., "0" Gauge Scale operation. Donation: Adults 35¢, Children 25¢. Hours: Fri. 7-10PM, Sat. 2-10PM, Sun. 2-5PM. Info. Richard Meade, 91 Elberon Ave., Hawthorne, N. J. Phone 427-2854.

TORONTO, CANADA. May 7, 8. Northeastern S Gaugers' Assoc. 6th Annual Convention, Canadiana Motor Hotel, Toronto, Ont., sponsored by South Ontario Region S Gaugers. Reg. & info. Gerald Mank, 16 Parkend Ave., Brampton, Ont.

KANKAKEE, ILL. May 28. 2nd Get-Together for Train Collectors & Model RRs., Bird Park Fieldhouse, Rte. 17 West. Displays, sale, auction, area collection & layout visiting. Hrs. 9AM-10PM. Refreshments. Donation. Info. Sam H. Griffith, Rte. 2, Kankakee, Ill. 60901.

WILLISTON PARK, L. I., N.Y. April 30, May 1, 2. Nassau Model RR Club Spring Show, 174 Hillside Ave., Williston. Hrs. Fri. 8-10 PM; Sat. 2-4:30 PM, 8-10 PM; Sun. 2-5 PM. Adm. by donation. Contact George Hatzfeld, Jr., 143 Laurel Dr., New Hyde Park, N. Y.

MATTAPOISETT, MASS. April 1, 2, 3. The Carl Hagenbeck Ring Circus Model Builders 4th Annual Exhibit, Knights of Columbus Hall, Rte. 6, Mattapoisett. All fields of modeling welcome to exhibit. Contact Joseph Nunes, River Rd., Mattapoisett. Adm. by donation: Adults 50¢, Children under 12 25¢. Hrs. Fri. 7-9 PM; Sat. & Sun. 1-9 PM.

TROY, NEW YORK. May 13. Rensselaer Model RR Society Open House, University Building Rensselaer Campus, Troy. 8-11 P.M. Adm. 25¢. Info. Edward Thalmann, 1014 Peoples Ave., Troy, N. Y. 12180.

Club Notices

CHICO, CALIF. Virginia & Truckee Model RR Club now forming. New members welcome. Meetings every Fri. eve. Contact Bob Jones, 444C Warner St., Chico, Calif. Phone 343-6213.

Fan Trip

BALTIMORE, MD., May 28-30. Baltimore Chapter, NRHS, Budd RDC trip, Baltimore to Buffalo via Pittsburgh, Memorial Weekend. Stops Silver Springs (Washington), Harper's Ferry, Cumberland and Hazelwood. Leave Baltimore May 28—return 30th. For schedule and rates contact Alan Crumbaker, 1135 Evans Way Baltimore, Md. 21205.

PUEBLO, COLO., June 19. Pueblo Soc. of Model RRs w/Denver & Rio Grande Western will operate Special Train from Pueblo to Salida and return thru Royal Gorge. Trip coincides w/White Water Boat Races down Arkansas River. Lunch included in ticket. Res. req. June 13. Contact R. M. Wexler, M.D., 310 Colorado Ave., Pueblo, Colo. 81005.

BOSTON, MASS. April 24. Boston Chapter, NRHS, Fan Trip over soon to be abandoned Main Line Elevated, includes photo stops and coverage of out of use Dudley St. Loop. \$5.00 fare. Info. contact Kevin T. Farrell, 46 Ferncroft Rd., Milton, Mass. 02187.

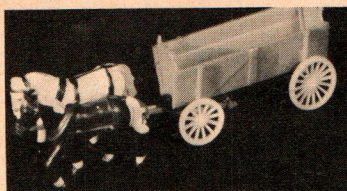
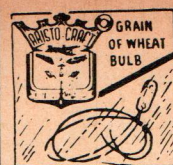
RUTLAND, VT., May 7. Steam pwr'd. 100 mile train trip over rails of Green Mountain Rwy., sponsored by Brotherhood of Live Steamers, Bellows Falls, Vt. to Rutland and return. Chicken barbecue dinner served at Rutland. Fare, incl. dinner \$9.75; children under 12 \$6.00, under 4—free. Dep. time 10:30 A.M., E.D.T. from Riverside Sta. 2 mi. north of Bellows Falls on Rt. 5. Contact Edgar Kruckeberg, Box 173, Garwood, N. J. 07027, or Howard Crotty, 8 Walnut St., So. Hadley Falls, Mass. 01043.

Listings

Club secretaries are invited to submit coming events notices to the RMC Timetable. Allow 6-8 weeks or more. Give name of responsible club official.

ARISTOCRAFT HOBBY COMPONENTS

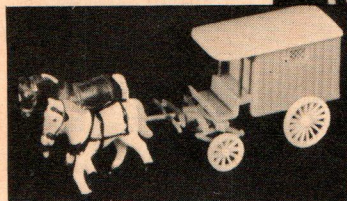
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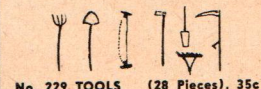
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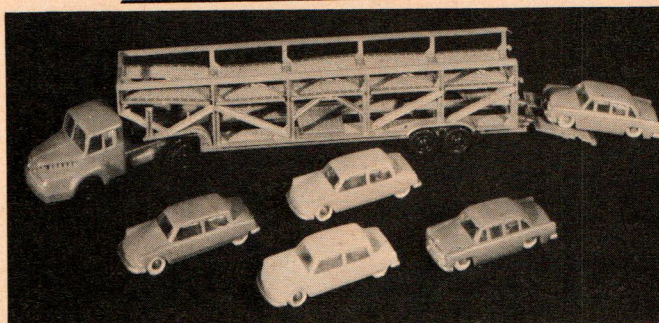
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Nos. 1-12



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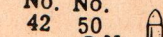
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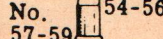
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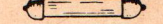
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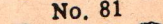
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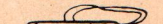
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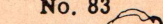
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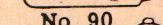
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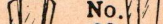
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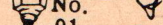
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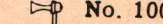
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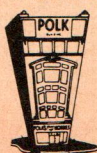
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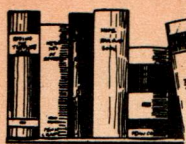
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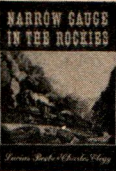
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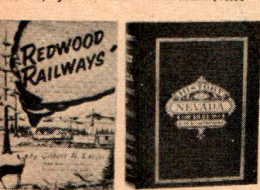
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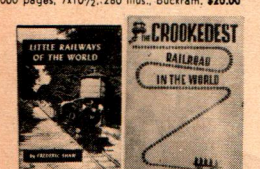
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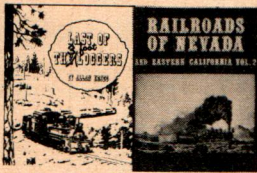


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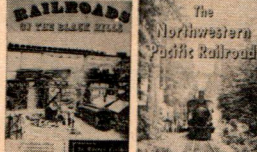
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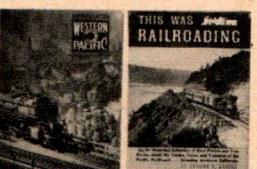
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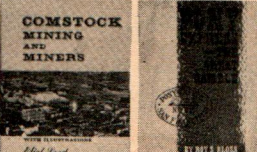
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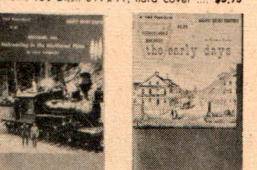
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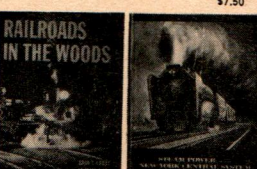
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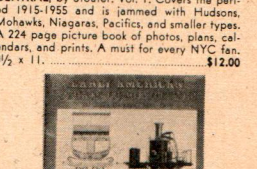
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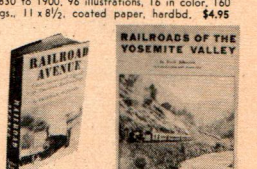


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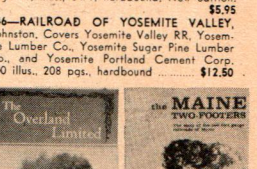
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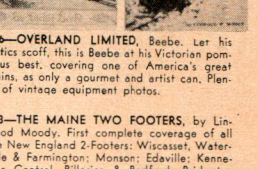
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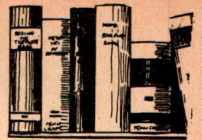


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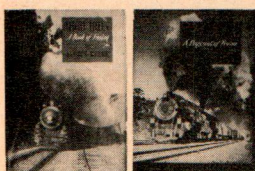


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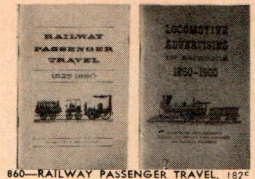


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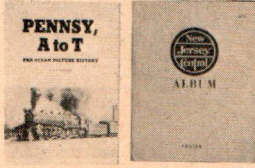
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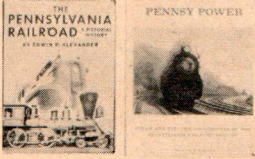
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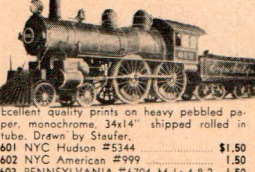


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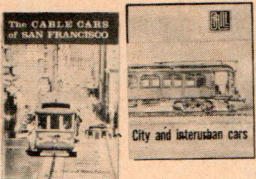
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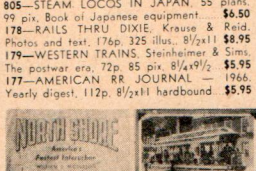


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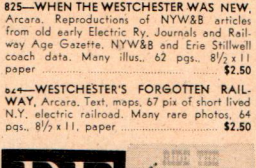


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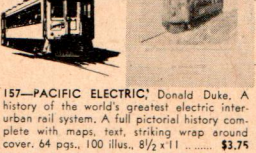


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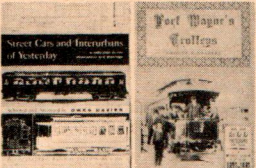
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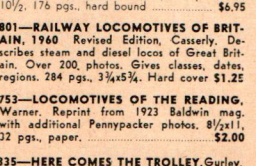


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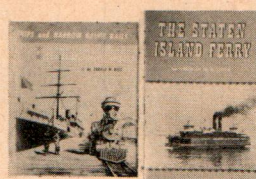
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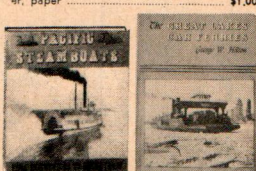


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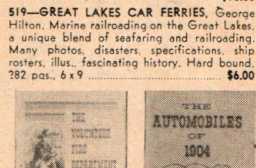
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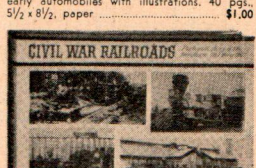


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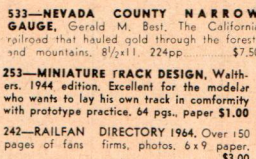
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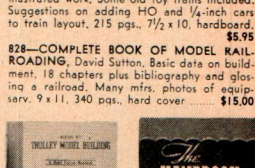
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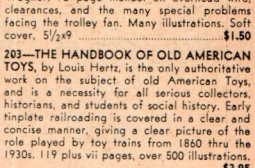


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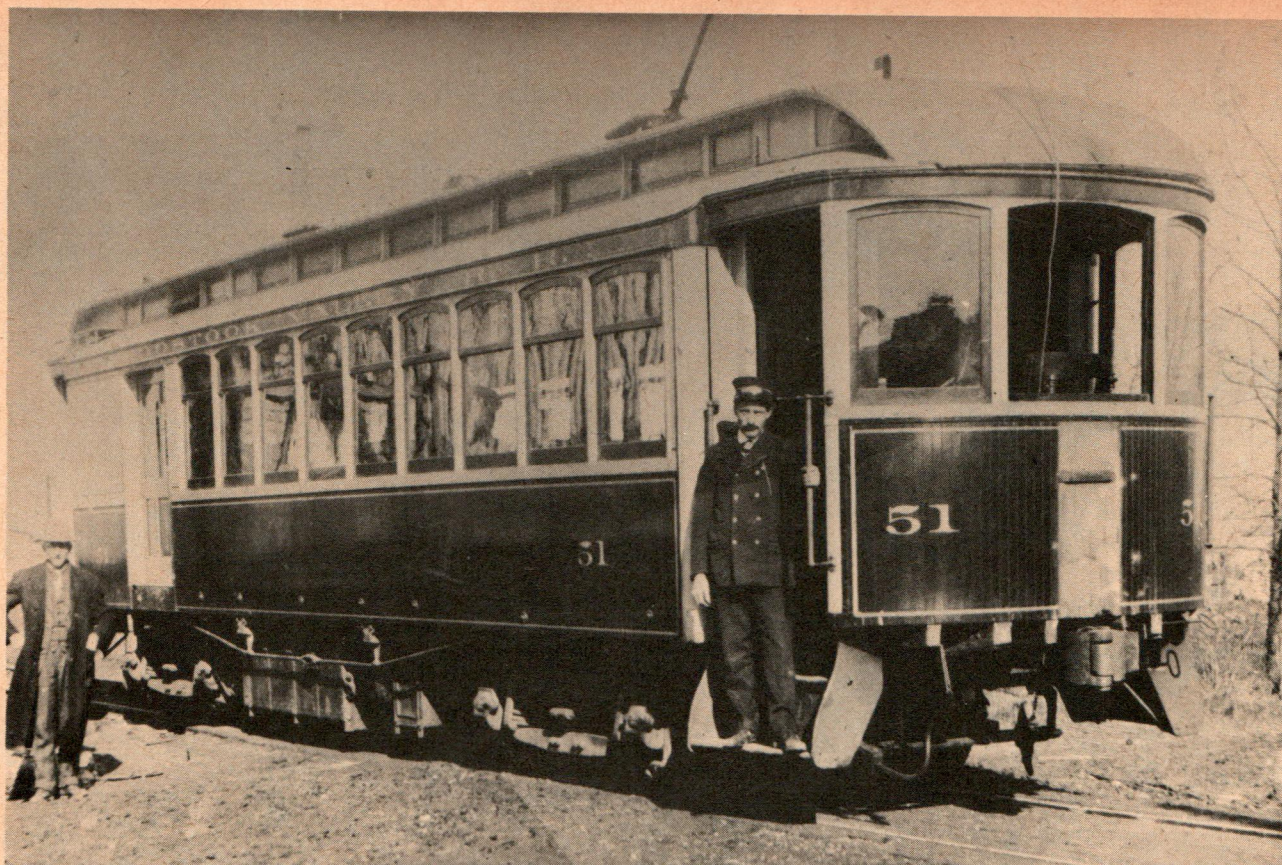
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Interurban Electric Railways

by C. Mischke

Usually working within tight budgets, the interurban lines operated their trains in carefully thought out sequence dictated by economies of operation, and capabilities of sub-stations and signaling.

ABOUT 1890, perhaps with the Newark and Granville (Ohio), a peculiarly American industry was born. It grew and faded in the short span of 70 odd years, perishing completely with the abandonment of the Chicago, North Shore and Milwaukee Railroad in January 1963. Just why it mushroomed in several spurts to include 15,000 miles of track and then nearly vanished from the scene in but a decade (1930-1940) is a fascinating story in its own right. What it was and how it functioned is usually the primary concern of fans and modelers. It is my intention to sketch its composite character and examine its modeling potential in order to alert model railroaders to the possibilities inherent in reproducing the interurban railway in miniature.

Brill-built combo 51 of Maine's Aroostook Valley RR was a 22 ton, 44 ft., 1200 volt car. Four passenger steps provided for double ended operation, along with reversible seats. Non-radial coupler was possible because of short car length and line's wide curves.

Model traction enthusiasts are a minority among model railroaders but what they lack in numbers they compensate for in enthusiastic and resourceful model-making and avid pursuit of all things traction.

What Was an Interurban?

No definition of an interurban railway was evolved during its existence that enjoyed universal acceptance. The Interstate Commerce Commission made the following statement. "The service of such railways, however, is distinguished by its local and limited character and by the fact that the bulk of their revenues are derived from the transportation of passengers. Their facilities for handling freight are usually inadequate so as to disable them from engaging in its general transportation. The amount of business interchanged by them with connecting carriers is ordinarily very small."

It is interesting to note that the presence or absence of electrical propulsion is unmentioned. By this definition gas lines such as the Woodstock & Sycamore (Illinois) and part of the St. Joseph Valley (Indiana) could be classified as interurbans and the electrically propelled Sacramento Northern (California) and the Lackawanna & Wyoming Valley (Penna.) may not enjoy interurban status because their freight activity and interchange was substantial.

The interurban was the natural outgrowth and extension of a very successful streetcar technology. The electrified railroads were clearly of steamroad technology except for motive power. Examination will reveal a continuous spectrum of streetcar-interurban-railroad with no clear and distinct demarcations between them. The interurban borrowed ideas from both extremes of the spectrum and initially more closely resembled the streetcar morphology since that is where its promotion and financing was heavily concentrated. In later years it moved toward railroad technology.

Many things were unique to the interurban railway and contributed considerably to its charm. The picture that comes to mind of a light, electrified shortline railway engaged principally in intercity passenger transport with subordinate handling of express, LCL, mail and carload freight in company and interchanged equipment, is the picture most people would label as interurban. The usual original interurban line was electrically powered by pole trolley and surprisingly short (about 25 miles), operating single-ended combines as one-car trains at scheduled speeds of 20 miles per hour over single track, mostly on private right-of-way. Less-than-car-load freight (LCL), was handled in motorized box

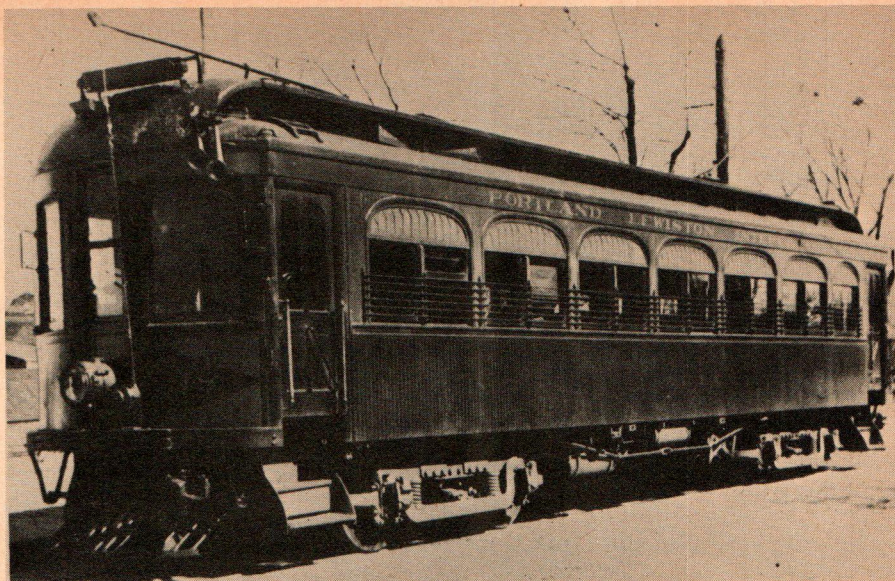
cars (often rebuilt, regearred passenger equipment) occasionally pulling a company trailer or, rarely, an interchange freight car. The trains left the principal terminus on city street-car trackage and then ran, partly on the side of the road and partly cross country on private graded right-of-way, not infrequently paralleling a steam road. Intermediate towns were traversed on street trackage which was either owned or rented.

Where, then, are the speeding limiteds? Where are the multiple-unit trains, the signalled double track, the interchange freight trains trailing steeple-cab locomotives in multiple? They existed, to be sure, but the popular conception (or optimistic hope) that this was typical, or common, is misguided. During the later years of the industry, consolidations created some large systems and some superlatives which became associated with them. The consolidations which created the Sacramento Northern Railroad allowed a 183 mile run for #2, the Comet. The Cincinnati & Lake Erie run from College Hill to Toledo was 216 miles long. Interstate Public Service (Indiana) ran parlor-diner and sleeping cars (although not in the same train) the 117 miles between Louisville and Indianapolis. Each Electroliner of the North Shore sped the 88 miles from Chicago to Milwaukee five times daily, and under favorable conditions of load, wind and grade exceeded 80 mph. These long runs, and the splendid trains which made them, represent the finest of interurban service, but hardly the typical performance.

The interurban was often conceived as a rival to an existing steam road. Rather than offer a few long passenger trains daily as the steam roads did, the electric line sought to compete by providing many hourly short trains daily. This could be accomplished with fewer passenger cars, from more convenient terminals and way stations, and (hopefully) at greater speed. The most popular car style was the passenger-baggage combination car (combine), operated single-ended with the baggage compartment forward. This gave the largest possible margin of safety to revenue passengers (the typical interurban accident was the head-on collision) and permitted the motor-man to assist in baggage handling without technically leaving his post.

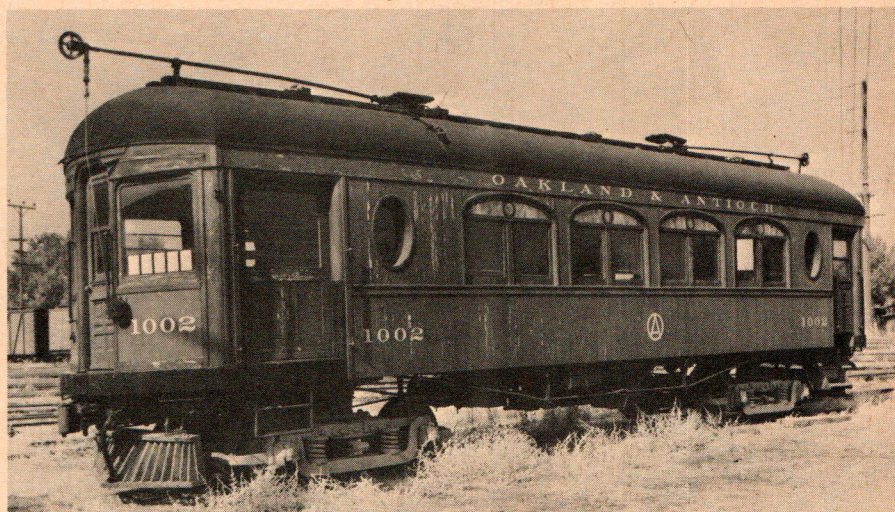
A 15 mile line with a 20 mph schedule speed could comfortably maintain 90 minute opposing service with two cars and two crews on the line. When traffic required, two-car trains were provided, more often than not, made up as a combine pulling a trailer coach. Power supplies were usually so modest that extra motors in a train caused voltage problems. Often a train of three motor cars was run with the first two in multiple and the third pulled as a trailer with motors cut out (but with brakes operative). The Kansas City, Kaw

RAILROAD MODEL CRAFTSMAN



Laconia and Wason provided the Portland-Lewiston Interurban with nine cars, of which No. 18, Azalea, is an example. Little known road was first to use trolley shoe, Westinghouse coupler, and airhorn. The cars were equipped for multiple unit operation.

Sacramento Northern 1002, built by Holman, was part of group delivered to predecessor Oakland & Antioch. 10 ft. wide, a bantam sized combo was 45 ft. long, weighed 30 tons, was built for train service but original equipment prohibited mu service. A beauty.



Valley and Western (Kansas) had seven passenger motors and after some Kansas University football games in Lawrence, two three-car trains departed for Kansas City. The first section had to climb the Union Pacific overpass grade before the second section departed and the sections extinguished all lights (except headlights and markers) so that low voltage didn't make the movement intolerably slow.

The electric interurban car (or train) had only two (rarely, three) running speeds. One speed was approximately one-half balancing speed. Balancing speed is the free running speed on level tangent track in still air. Most cars had four motors, one geared to each axle. The cars could run at balancing speed with all motors in electrical parallel between the wire and the track. Half speed of in-

definite duration was effected by connecting the motors of each truck in parallel, and the two car trucks in electrical series. The controller, which implemented this electrical switching also introduced and removed electrical resistors from the propulsion circuit. The car was started by placing a resistor in series with the half-speed motor circuit. As controller "points" were traversed, resistance was cut out in steps until the half speed circuit was connected. The starting (accelerating) points could only be used for a short time, otherwise resistor grids (under the car) would burn out. After the first running point was attained (all resistance out of the propulsion circuit) the following notches placed the motors in electrical parallel with resistors in series with them. This resistance too, was successively notched

out until the second running point was attained. This was full speed. Still higher speeds were attainable in special cases by field shunting, but this was very rarely installed. How, then did the motorman sustain speeds other than those of his two running points? He did this by skillful applications of power, brakes and coasting, ever conscious of the momentum of the vehicle(s) in his charge. His was a finely developed art. Sustaining a speed of less than ten miles per hour in city traffic required skillful motormanship. Occasionally even skilled motormen used the first notches too much and some lines (the Puget Sound Electric Railway, for example) rewired their cars to include a full series running notch for sustained street running.

On a line where multicar trains were typical, the Oregon Electric, some substations were provided with drooping voltage characteristics; so that the heavy train would pull a heavy current from the station, causing a severe voltage drop. The motorman would notch more quickly to his first running point and hold his con-

troller there, and as the accelerating train reduced its current demand, the line voltage rose to near normal value. The controller was notched up one, and as the accelerating current demand again lowered the voltage, he could notch to the second running point, and accelerate in the second running position. In effect, the substation was accelerating the train. Instead of dissipating lots of energy under the car, the line voltage was varied to cause the same effect without the large energy loss. This was a typical installation, but it illustrates the clever approaches to problems that was a hallmark of much of the interurban industry.

Equipment

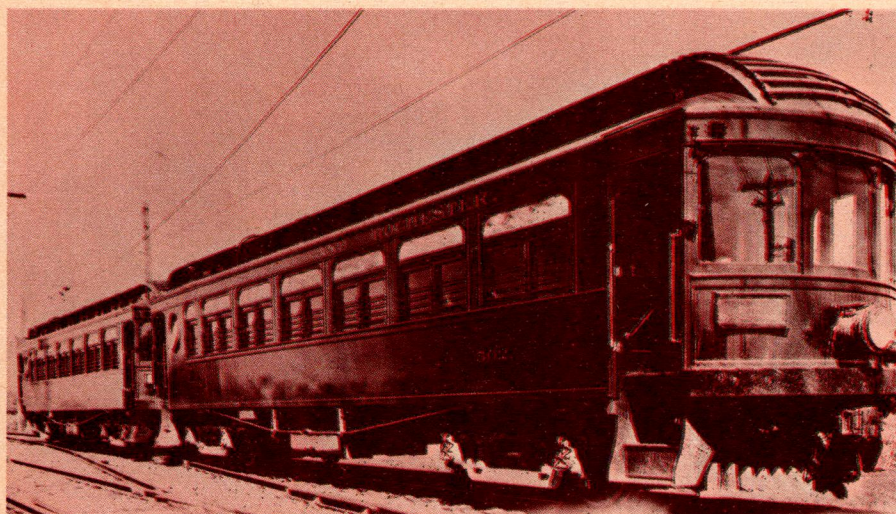
The most prevalent car style was the combine, with the straight coach being second. Most cars were single-ended, although many had two trolley poles to help in wying or running two combos back-to-back. Some had hostler controls at the rear end (a two point controller and a brake valve) for backing movements or occasional switching.

Running a combine backwards in revenue service as a single car pre-

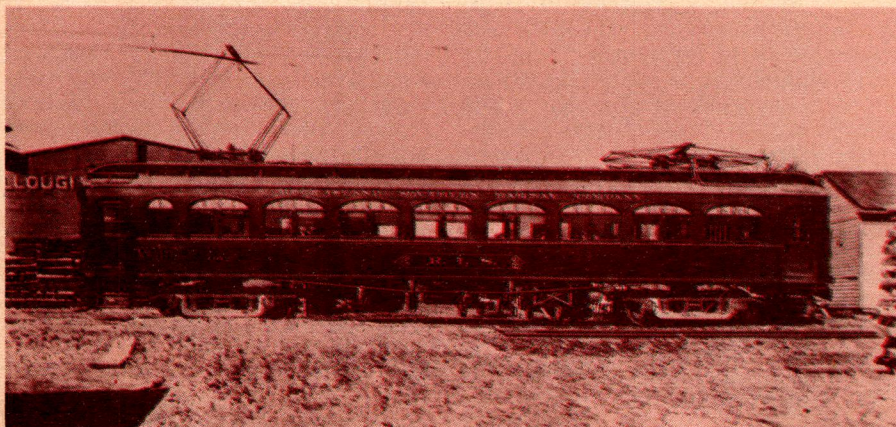
sented problems. The interurbans picked-up and discharged passengers from both sides of the track and the usual combo had passenger steps only at the rear of the car. No matter where the motorman's position was, in running the combo backwards boarding passengers found him and his stool in the way. Roads which ran their combos backwards in revenue service either provided passenger steps at all four corners of the car or moved the rear steps one window width toward the baggage compartment, providing a separate motorman's compartment, as in the Sacramento Northern's 1003 series combos. A less common solution was moving the passenger entrance to the center of the car side as in Southern Iowa's 25-26 or Fort Dodge, Des Moines & Southern's 50, 52, 54. The commonest solution of providing four corner passenger steps required passengers to traverse the baggage compartment, an unsafe practice. Such cars were owned by Salt Lake, Garfield & Western; Chicago, North Shore & Milwaukee, Northern Electric, and the Pacific Electric.

Cars were equipped with train doors when multi-car operation was likely and the later equipment of the Chicago, North Shore & Milwaukee, Chicago, Aurora & Elgin, Sacramento Northern and Chicago, South Shore & South Bend provided train doors at both ends of every car. The usefulness and popularity of the combo usually placed it at the head end of every multi-car train. A road committed to this practice and adding a second car as required, placed train doors only at the rear of their combines, retaining the typical three window end on the front of the combine. Such combines were built for Interstate Public Service (150-7), Waterloo Cedar Falls & Northern (140-3), Buffalo, Lockport & Rochester (coaches 500-5). When combos were run MU they were usually mated back-to-back in order that both sets of passenger traps were adjacent for crew convenience and for making the revenue passenger space continuous. The Lehigh Valley Transit (Penna.) practice with their 800 series combos in train makeup was typical.

Double-ended equipment that was not turned, moved in predictable patterns. The North Shore kept their combos on the North end of their trains and the terminals reflected or caused this commitment. The Pacific Electric was not adverse to putting their combos anywhere in the train. Coaches were either powered with two or four motor equipments or operated as trailers. Coaches intended for train service usually had train doors at both ends, occasionally were equipped as control trailers, and sometimes powered. The coach trailers of Indiana Public Service (300's) had train doors and solarium windows. The trailers of the Milwaukee Electric (1212-21) had only two steps diagonally opposite. Indiana Public



Cincinnati built Buffalo, Lockport & Rochester 500 series were intended for one or two car train service so had traindoor at one end only. 35 ton cars were too peppy with original 125hp motors and were regearred to lower 60mph balancing speed, from 80 mph.



Niles-built 302 came to the Rock Island Southern from the Washington, Baltimore & Annapolis and ran singly or with trailer on the Illinois carrier. AC powered line with pantograph pickup.

Service combos had no train doors, nor did the cars that ran with them in train service.

Control trailers which could be the first car of a train necessarily had pilots, whistles and other appropriate head end equipment. Examples include CNS&M 185-197. A real rarity was control trailer 1018 of Sacramento Northern that was a *combo*, and it was often run back-to-back with a similar combination motor on their Pittsburgh branch.

Interurbans occasionally tried diner, buffet-parlor, sleeper and observation cars. Diners of the North Shore were of both the control trailer and motorized variety. The buffet-parlor cars of Interstate Public Service were "half" motors (2-motors), designed to be the second car of a two car train, single ended, with solarium windows in the rear. Cars 100-2 of WCF&N were built as buffet-parlor-observation cars intended for use as the second car of a two-car train and equipped with four motors, trolley pole, a splendid observation platform, but no pilot. These cars were later made into combo-observation cars and equipped for operation alone or in train. These cars were particularly appealing products of McGuire-Cummings because of their generous proportions (ten foot width). Sleepers were tried by Illinois Terminal, Interstate Public Service and Oregon Electric as trailer cars.

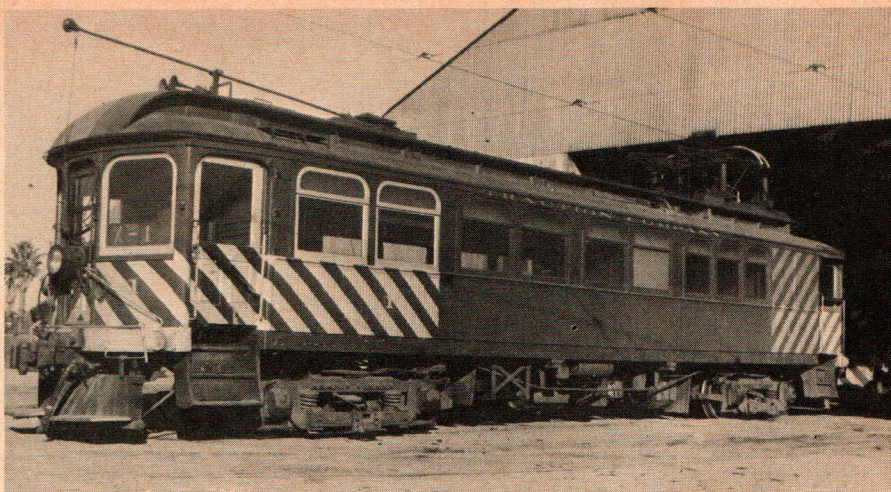
Open observation cars were the *piece de resistance* of the steam road limited, and interurbans tried to imitate the luxury. Special operating conditions caused interesting details to be incorporated into construction. Four of the five observations of the CNS&M had pilots at both ends for backing moves. Sacramento Northern's Moraga was built as a double-ended observation with pilots, 4-motors, controls at both ends and pole and pantograph trolley. The lack of turning facilities in Sacramento and the long backing moves onto the Key Pier at Oakland required it. Later terminal changes allowed demotorization, and single end reconstruction, but pilots and backing controls were retained for pier moves. The Illinois Terminal had observation trailers as well as Salt Lake & Utah, FDDM&S, Oregon Electric and Inland Empire.

The *Bidwell* of Northern Electric and the *Sacramento* of Sacramento Northern had no steps or tailgate on the rear platform.

Equipment Usages

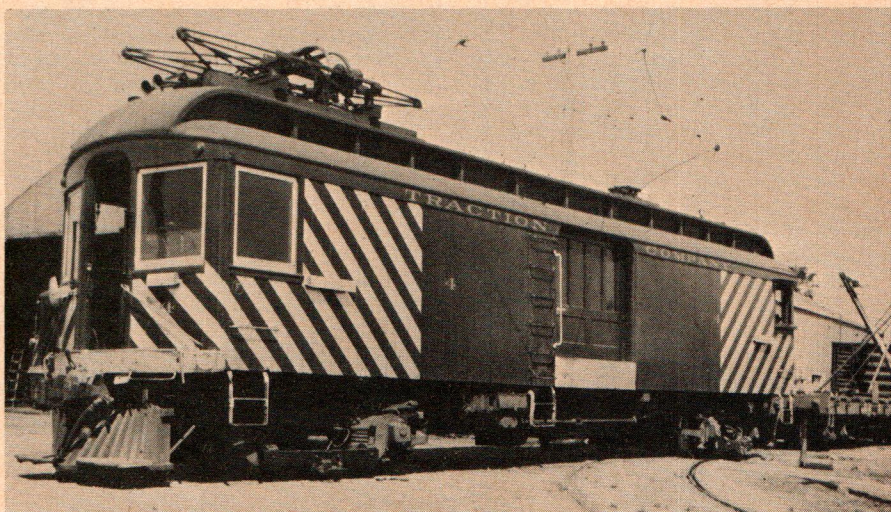
Train makeup was not simply a case of assembling and coupling cars. A one car train ran equally well in either direction. A motor and trailer operated well with the trailer following. In the opposite direction the trailer was given a definite shove by the motor car as each controller notch and the slack action is objectionable. A three car train consisting of a motor and two trailers operated well only with the motor leading.

RAILROAD MODEL CRAFTSMAN



50 ft. long American-built No. 1 of Central California Traction equipped with pole and pantograph, elevated to increase pressure on wire. Blanked out end windows marks baggage compartment.

Box motor No. 4 of Central California Traction was Holman product equipped with four 75 hp. motors, and used as loco in flat territory. Under-running third rail was first such 1200 volt installation. Pantograph was used for switching. Note visibility markings and shaded lights for night illumination of the husky wood body.



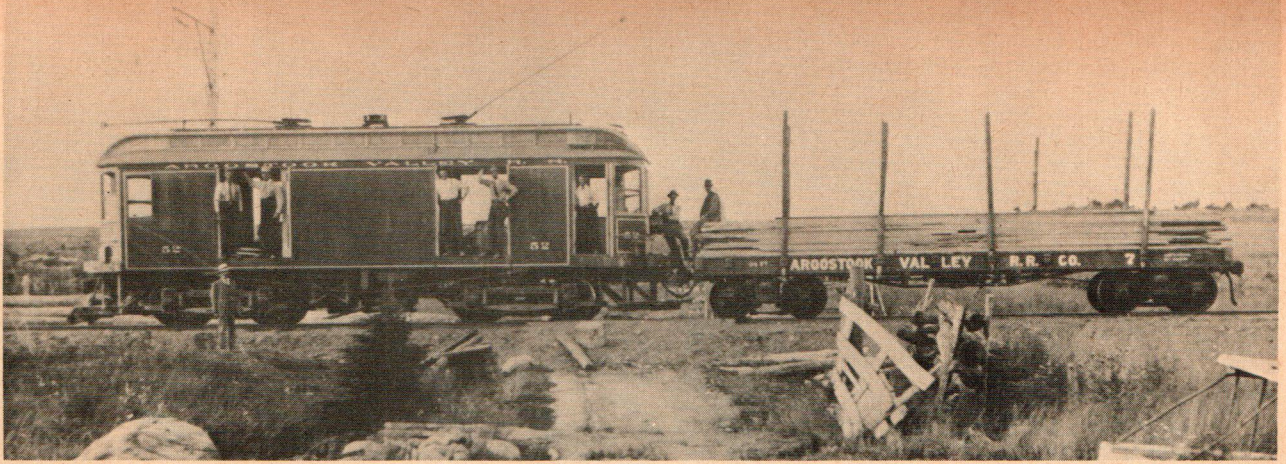
With the motor at the rear slack action was fierce and street car turns were a cause for prayerful transit. A three-car train of two motors and one trailer operated best as a motor-motor-trailer arrangement. When a reverse movement was necessary the compromise motor-trailer-motor consist prevailed. Even so the last motor was prone to leap and bunch slack. Of course, a three-car train of three motors operated well in either direction.

Incidentally the balancing speed of a three car train of identical motor cars is greater than the balancing speed of a single motor car. This is because the wind resistance *per car* is less in train than single. A train of cars has only one head and one rear end. The intermediate ends are sheltered and the effect on speed is observable. If a single car has a balancing speed of 70 mph a train of four motor cars will balance at over 80 mph. Long trains that tend to be

too lively on schedules that can be kept by single cars are "diluted" with a trailer without affecting schedule keeping capacity of the consist. (Trains of RDC's are diluted with RDC-9's, which have only one engine, without impairment of schedule keeping ability, yet consuming less energy).

On a four-car train a single trailer operates best at the rear of the consist. When the consists runs in both directions, the trailer is buried in the train. A four car train with two trailers operates best as a motor-motor-trailer consist. Double ended operations require trailers-in-the-middle and slack action is bad. Sacramento Northern's school train of motor - trailer - trailer - trailer - motor consist was not only poorly powered for grades, but uncomfortable riding.

From the above consideration, and others, we can appreciate that initial decisions had to be made by operat-



Aroostook Valley Brill-built box motor No. 52 was a light 32 ft. car with hexagonal ends; shown with flat car 7, engaged in opening the line. After steeplecabs arrived, 52 was assigned to local freight.

ing companies when equipment was being ordered. The easy answer in stub terminal operations is every car powered, but this is expensive and particularly hard on power supply. If terminal operations permitted, the one-way operation of multi-car trains was the preferred method.

Train makeup, even with all motor cars, was not like shuffling cards. The CNS&M kept its combos on the North end, baggage compartment North. The Lehigh Valley Transit in two-man days ran combos back-to-back in two car trains. In three car trains the combos were run forward-backward-backward. This put the steps of the first two cars together and the third car was loaded for terminal to terminal traffic (little use of the third trap). This train had baggage compartments protecting both ends of the consist. The train, while technically double ended, was turned at the outer terminal in an interesting fashion so that the former head end combo was looped around the unlooped remainder of the consist and became the new head end car with baggage compartment forward. The returning consist again presented a forward-backward-backward attitude while running.

In one-man days a different makeup policy was used. Northern Indiana ran two car combo trains back-to-back even though there was no train door because the couplers were only on the rear ends of the cars. Train door equipment in multiple were operated with all revenue compartments in communication by train doors. A famous photo of an IPS combo-express trailer-parlor buffet can be suspected of being a publicity pose on the grounds of improbable makeup (trailer in the middle of a one-way train, and passenger compartment not in communication) or one passenger compartment is out of service (a deadhead move).

Train Control

Interurban signalling ran the gamut from none, through manual block, to continuous track circuit signals of steam road type (although differing considerably in detail). The usual interurban line was single-tracked and relatively short. Although the road might have many passing sid-

ings for freight train runarounds and meeting extra trains, the timetable schedule often revealed a single meeting point for regular passenger trains, approximately midway between the terminals. Dispatching and train control were simple and the central substation operator could provide protection for scheduled trains.

Interurbans, in order to compete with parallel steam roads, had to provide their physical plant at a fraction of the typical railroad cost per mile of track. Everything; track, bridges, signals and grading showed this economic consideration. Their low cost engineering answers were often clever.

A single-track steam road usually had many miles between passing sidings and several block signals between the sidings. Thus, when a steam train entered single-track, all opposing signals to the next siding showed red and those serving the train indicated red, yellow or green as required by track occupancy. Thus it was possible to follow a steam train into single track at an interval governed by block signal indications. The electricians liked this capability of trains moving in the same direction occupying single-track. However, the shorter distance between sidings and the leaner economics suggested a single signal advising of the condition of *all* single track between sidings, and displaying an absolute-permissive indication, i.e., indicating absolute stop to an opposing train and a permissive entry with appropriate caution to a following train. With Nachod signals a clear block was simply an extinguished light (not a fail-safe system). An occupied block with opposing movement showed a red light (absolute stop) in front of the train on single track and a white light (permissive entry) behind the train. This complicated signal circuitry since the system must sense train direction.

If the first train to enter single-track, giving an absolute stop indication to an opposing train at the next passing siding, is followed by a second section, how do you prevent the

first section arriving at the meeting point from clearing the absolute stop indication? Early in interurban history continuous track occupancy circuits were not possible. It was necessary for the signal system to *count* the trains into a block and not clearing a block until it had counted the same number out. Before the development of continuous a-c signalling, the rails could not be used for signal circuits since they were both continuous for traction current return. The signals were actuated by trolled wire switches which noted the passing of a trolley pole (sensed number and direction). It was necessary for a block circuit to count poles into and out of a block in order to establish and clear a red signal. If a train entered a block with three poles on the wire then it had to leave with three poles on the wire or the signal would not clear. Thus a single line car could enter single track, work and return to place of entry and clear signals it actuated. (A work extra is protected by train order and flag, so the permissive indication in one direction was not an open invitation to disaster.) There were other novel features in the intermittent action traction signals as marketed by Nachod, Ward and U.S. that warrant further investigation.

The wandering West Penn (Penna.) used motorman - actuated manual block signals, circuited not unlike the domestic hall light-switch. The Buffalo, Lockport & Rochester operated without the benefit of signals. Part of the Indiana Railroad used two color light block signals and the North Shore used three color signals.

Dispatching ran the gamut from informality to railroad rulebook. The electric lines pioneered telephone dispatching in contrast to the then universal telegraphic method. The dispatcher talked directly to train crews rather than to station agents. Railroad rules, 19 and 31 train orders, train register stations, and clearance cards figures in many operations.

Typically, the interurban companies used 600 volts direct current, generated by the company, trans-

MAY, 1966

mitted as high voltage a-c to substations wherein it was converted to 600 volts d-c and fed to the trolley wire and auxiliary feeder. Substation spacing varied with traffic and economics, but a ten mile figure represents a reasonable spacing interval. A thirty mile line might have three substations, spaced at the 5-15-25 mile points; each serving ten miles of track, five in each direction, each sized to power two trains in its territory.

Power collection was by pole trolley from a single suspension overhead held by single bracket poles which also carried the a-c transmission lines, auxiliary feeders and communication lines. It is true that some lines used pantograph or third rail power commutation (there were even a few original installations of bow trolley) or combinations of pole, pantograph and third rail. Lines that were predominantly third rail included Scioto Valley (Ohio), Northern Electric (Calif.), Philadelphia & Western (Penna.), Lackawanna & Wyoming Valley (Penna.) and the Chicago, Aurora & Elgin (Ill.). Pantograph power collection was used on lines such as the a-c Napa Valley (Calif.), the a-c Visalia Electric (Calif.), the d-c Portland, Eugene & Eastern (Ore.), and the a-c, d-c Denver & Interurban (Colo.). The Sacramento Northern and the Hudson Valley (N.Y.) used all three.

Some roads, operating more than one motor car per train but less than four, collected traction current from a single trolley pole raised on the lead car, and used a power bus running thru the train to distribute traction current to the rest of the train. The Sacramento Northern, the Chicago, Aurora & Elgin and the Milwaukee Electric made this connection at the roof. The Hershey of Cuba used ingenious trolley pole bus connection for 1200 volt d-c. This is something that some modelers may wish to investigate further. The Indiana Railroad lightweights (50-84) made this connection thru the coupler. A train bus can cause problems in third rail territory where there are long breaks in the third rail or a suddenly encountered dead section. A train of five motor cars on third rail (with a continuous power bus) upon entering dead third rail will have the last car pick up all power for the train, and the bus at that end of the train attempting to carry traction current for 16 to 20 motors. This overloads the bus and the danger of fire or ground is present. Also a load of unknown size could be energized by train bus. The CA&E, which used this system and operated trains up to eight cars, had power signals alerting the motorman to shut off before entering a dead section.

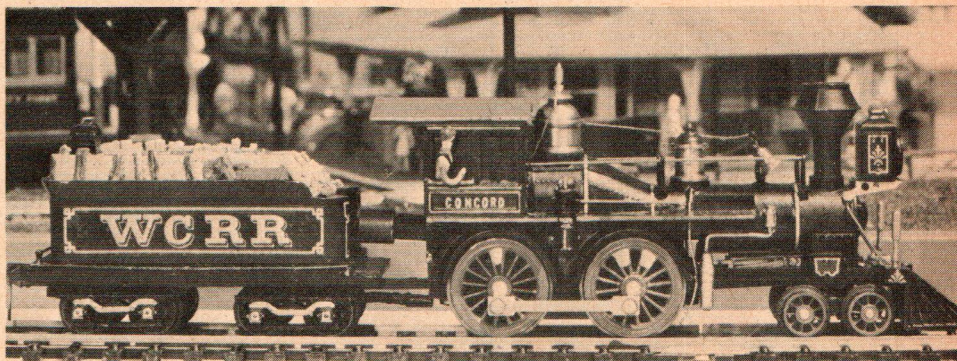
Interurbans operating long trains of motor cars did not use the bus and allowed each car to collect its own power. The loss of a pole meant a dead motor in the train.

RAILROAD MODEL CRAFTSMAN

A Hinkley by Default

by Bruce C. Bowden

Tyco's General locomotive becomes an inside connected Hinkley with a few evenings labor, creating a rarely modeled type of steam locomotive.



The author's Concord, an inside-connected 4-4-0 was built from a Tyco General. Changes were made in the stack, pilot truck, and cylinders. Loco is painted shiny green, red.

NUMEROUS photos and articles have appeared on these pages on modifying the famous Mantua (Tyco) "General". Here's a novel variation that resulted quite by accident.

The little lady, in keeping with early tradition, is named the "Concord" and is somewhat reminiscent of the first Hinkley locomotives. Unlike many locos today she is all decked out in red and green livery. The domes and bell are highly polished and she's appropriately trimmed in silver and gold. The WCRR is the herald of the author's Weston Central, often referred to as the "Water Closet" line by his closer friends.

The original locomotive was acquired in a trade some years ago. She was plastered with a heavy coat of enamel and pretty beat up. After disassembly and once around with the paint remover I discovered that some of the zamac castings were on the verge of disintegration. This was typical of much of the zamac made shortly after the war. Too much zinc or something. The tender shell crumbled completely, but fortunately I was able to obtain a replacement casting from Mantua. To alter the appearance a new headlamp, smokestack, and bell had been ordered from Kemtron. Now with everything cleaned up and the parts ready to go back together the cylinder block suddenly went the way of the tender casting.

I have quite a sizable photo collection and among my favorites are several views of the little slim-waisted inside-connected Hinkley locomotives

... this gave me an idea! I salvaged the saddle from the cylinder block casting and filed it flush with the sides of the main frame. Then I drilled and filed two channels in the main frame approximately $1\frac{1}{8}$ " long by $\frac{1}{8}$ " wide in which were set the cross-heads and side rods. These can be seen in the photograph just below the boiler. Two $\frac{1}{4}$ " brass half circles were fixed to the front of the saddle just above the main frame to simulate two side by side cylinder heads.

The remainder of the model was both natural and easy. Obviously what with no external cylinders there was no reason for the long wheelbase pilot truck. A new groove was filed in the original pilot truck frame and the excess length removed with a razor saw. The main frame directly behind the cow-catcher was similarly shortened with a saw. A little bit of paint, some patient decal work and you see the results above.

A short side story here. Seems as though everyone these days bent on realism insist that his locomotives be weathered. Grimy black, smoky soot, and greasy grey are names of the times. Not so for the author though, he finishes his fleet to look just like the day they rolled out of the shops. His technique and still common among many rails is to apply a light coat of high grade dull varnish to all but the smokebox and stack. The advantages are that excessive handling will not affect the paint job and where decals are used it reduced the sheen and adheres them permanently.

Side Dump Serendipity

by David K. Gast

THE DICTIONARY definition* just can't do justice to one of the most desirable accidental discoveries in recent model railroading—a side dump car kit that is easily modified for use in three different scales (HO, S, and O) in narrow gauge and standard gauge forms. This side dump serendipity requires no scratchbuilding or special skills. All you need is a Model Engineering Works HO scale 12 Yard Side Dump Car Kit plus a few parts, depending on your scale and gauge, and you can follow this tale of model railroading serendipity.

Once upon a short time ago there lived three railroad modelers who, like the Three Princes of Serendip, had the faculty of making desirable but unsought-for discoveries by accident. Actually, they also had the faculty of making unsought-for undesirable accidents, but that is another story. Anyway, these three railroad modelers, Dave Grandt, Sheldon Schwedler, and Dave Gast, by name, all came upon the same side dump serendipity simultaneously but inde-

pendently of one another. All of which goes to prove, perhaps, that railroad modelers are far more creative, resourceful, and self-sufficient than old Ceylonese princes.

At any rate, Grandt, Schwedler, and Gast made the happy discovery that the M.E.W. HO scale 12 yard dump car kit made a very realistic scale O narrow gauge dump car with very little alteration. After brief personal exultation, each of the modelers discovered the other had made the same discovery within the same month. Instead of dampening any spirits, the simultaneous serendipity of the narrow gauge trio gave way to a no-ideas-barred contest on all possible variations and modifications of the M.E.W. kit. The results were much fun, with plenty of easy-to-make but unique variations of the model in HO, S, and O scales. (This is all very amazing in light of the fact that Grandt and Schwedler have never heard of HO or S gauge.) We are going to share the fun of making some side dump car variations, but before we do let's briefly consider the prototypes.

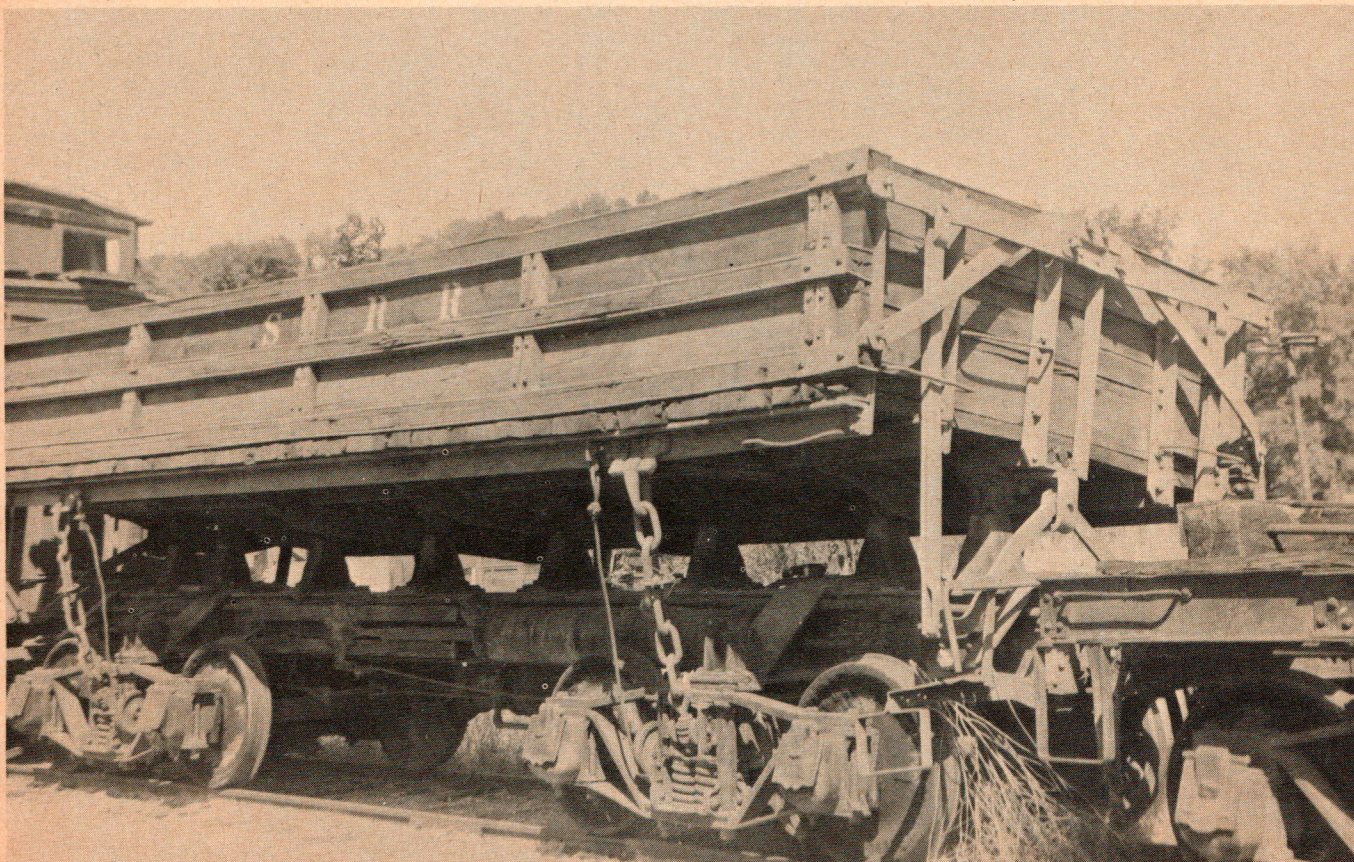
Model Engineering Works' side dump car can be used in HO and also in S and O narrow gauge, in most cases with a bare minimum of scale conversion.

Prototypes

The side dump probably strikes many modelers as being a special purpose car, which in a way is unfortunate. It is true that the side dump car was used primarily for construction work, but it has far more utility than is apparent by its popularity on construction projects. The side dump has also been used in mining, maintenance of the way, quarrying, smelters and steel mills, refuse disposal and lumber mills. Prototypes vary from the huge modern fifty-foot cars of 50-yard capacity, down to tiny four-wheel mine "tunnel" cars that hold only a few yards.

Side dumpers have been manufactured for many years and early ones were made with wooden bodies as the accompanying picture of the Sierra Railroad side dump car so well illustrates. More modern cars have been of all-steel construction. Many companies have manufactured side dump cars; the most common coming from the Differential Steel Car Company and the Austin-Western Company and its predecessor, the Western

Early wood bodied side dump car on the Sierra Railroad. Note how body is chained to trucks to prevent tipping. Lettering on such equipment is often meager or non-existent on industrial lines.



*side dump car, n, a railway car that is self-emptying by means of a tiltable body with geometrically operated side boards.
serendipity, n, the faculty of making desirable but unsought-for discoveries by accident. Derived from the legend of the Three Princes of Serendip (the old name for Ceylon) who had this faculty.



Wheeled Scraper Company. Many smaller firms have produced diminutive side-dumpers for mining use.

The Model Engineering Works' kit that we will build and modify is based on the popular prototype 12-yard dump car manufactured by the Western Wheeled Scraper Company. The prototype was only 23 feet long, but its short wheelbase accounted for its popularity because it was particularly adaptable to the very rough track which is so often found on construction sites and industrial railways. For many years this car was used for practically all movements of large quantities of material such as rock, dirt, sand, and gravel on major construction projects. Today, heavy-duty rubber-wheeled earth moving equipment has largely replaced this prototype and has relegated it to use in heavy industry and railroad maintenance of way. The side dumper continues to be popular in industry because of its self-clearing ability. Some dumpers were manufactured without air cylinder which meant they could be manually dumped very easily because of their center balance design. Although the kit we will build and modify is HO scale, the fact that similar side dump cars were made in a wide variety of sizes for both narrow and standard gauge use, make this kit adaptable and authentic in O and S scales as well as HO. Before we get to building the car let's look at the various uses the modeler can make of the side dumper.

RAILROAD MODEL CRAFTSMAN

Straight HO model as built from M. E. W. kit of dump car without any modifications. Prototypes were ruggedly built to withstand heavy loads and rough handling, in quarry, M-O-W, other work.

Dumpers In Action

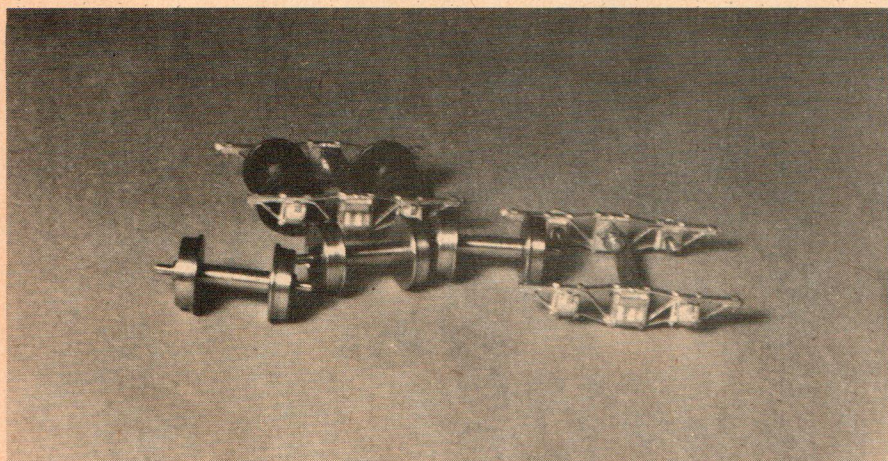
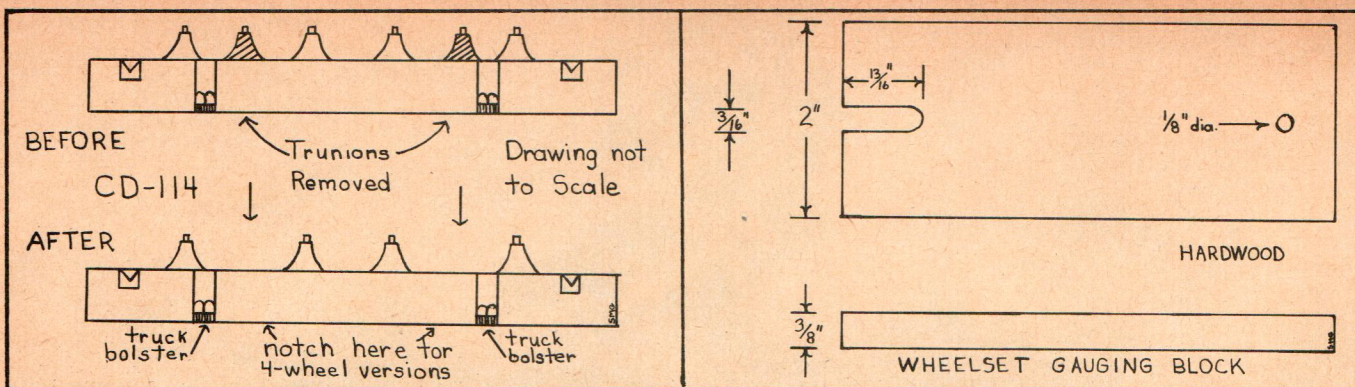
If you are not cranked up by now with all sorts of ideas on how to put a side dumper to use, just consider the following plans for the use of the dumper on your existing pike or on that new layout you're going to build.

Construction work. Seldom do we find a model pike that is finished. Something is always being built or added so that construction and model railroading are practically synonymous terms. But how often have you seen a pike where the brass hat has thought of adding to his fun by actually making his model operations correspond to the building program he is carrying out? The side dump car was one of the major pieces of equipment in new railroad construction so why miss the fun of adding model realism to the actual building of a new branch or siding? The side dumper will help you haul rock and dirt away from the cuts and take material to the fills. But railway construction should not be our only consideration. What about the wonderful heyday of railroad built and railroad supplied construction projects, before the advent of large, rubber-wheeled earth moving equipment?

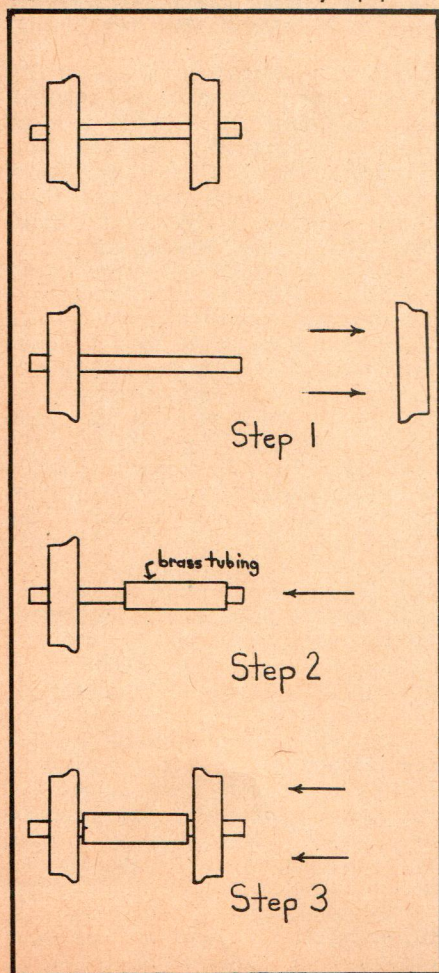
Highways, canals, dams, and breakwaters were all built at one time by the use of railroads that were temporarily and sometimes permanently built to haul men and materials to

and from construction sites. Just flip through any pictorial history showing early-day construction work, such as Hank Johnson's *The Railroad That Lighted Southern California* (Available through Model Craftsman Publishing, Corp. P. O. Drawer C., Ramsey, New Jersey, 07446) and you'll wonder why you haven't seen a heavy construction project as the central theme around which a layout is built. Talk about a neglected facet of model railroading! Consider the building of a large dam and hydroelectric plant in remote areas such as the High Sierra or Grand Canyon. First, a rail line had to be built to the site. Often it was a standard gauge branch built by the nearest major railroad if the revenue potential seemed to warrant. Sometimes it was a separate short line like the San Joaquin and Eastern built by the promoters of a hydroelectric project to connect the site with a major rail line. Boom towns and company towns were erected at the site.

Supplies for the workers and for the project employed every kind of freight equipment imaginable: box cars, gons, reefers, flat cars, hoppers, drop-center heavy duty cars, and tank cars. Look what had to be brought in: food, people, oil, cement, sand, gravel, wood, penstock sections, furniture, huge generators, and the construction equipment itself. Regu-



Gilpin prototype side frames for On2 with $\frac{1}{4}$ AAR wheelsets are now offered by Coronado Scale Models. Maine On2 archbar trucks are also available from Scale Railway Equipment Company, of St. Louis.



lar passenger service was often instituted on a small scale to such sites.

At the site, light, temporary railways often of narrow gauge were built to haul the building materials to the spot where they were to be used. This is where the side dump car was in its element. These cars carried rock, sand, earth fill, and gravel to the sites and carried away unwanted material from cuts and excavations. An old photo in my collection shows a dinky narrow gauge two yard side dumper loaded with loose mud and leaking at the seams. In standard or narrow gauge and in four wheel or double truck versions, the side dumper was pushed and pulled over the rough trackage by locos typical of construction work.

Popular construction locos were the geared type like the Shay, Heisler, and Climax, and the conventional small saddle-tankers. Quite often the contractors would use old and decrepit hand-me-down locos that had seen better days on regular lines, which gives the modeler a prototypical excuse for running vintage locos on a modern pike. By the 1920's, gas mechanical locos had arrived on the scene and even before that time, electric railways were built for surface and tunnel use in construction.

The HO modeler has a wide selection of locos to choose from that would be appropriate to such a pike. Pacific Fast Mail's "Little Joe" saddle-tanker and Plymouth Industrial

switcher would provide reliable yet inexpensive motive power. Many good saddle tankers and diesel switchers are on the market. Personally I would use Shay geared locos, but then again, I have a strong Shay bias. Locos like M.E.W.s 44 ton, double truck diesel put the steamers out of business on many such projects and one should not overlook the small brass electric locos of M.E.W. and Ken Kidder. The box cab versions could be run as early diesels if you removed the trolley poles and pantographs and added a simple flat roof-mounted radiator made of wire. O and S scale operators will have to buy or build suitable locos in standard or narrow gauges.

Kemtron's O scale Shay is available in kit form and can be made in standard or 3-foot narrow gauge forms. Sheldon Schwedler's prize-winning scratchbuilt two cylinder Shay may be seen in an accompanying photo with an On3 version of the M.E.W. dump car. Modelers of On3, On2 $\frac{1}{2}$, and On2 can follow suggestions for motive power offered in the December, 1960 R.M.C. in which a simple Athearn Hustler conversion as offered by Lee Klaus and in the September, 1964 R.M.C. in which I described some more possibilities. (Back issue R.M.C.'s are in short supply so send to the above address of this magazine in care of Back Issue Department). Many On loco conversions can be done for as little as \$10.00 total cost, parts and loco. Well, how about it? Ready to begin a pike based on the construction theme?

Mining, milling, and smelting. The mining theme for model railroad pikes has become increasingly popular, what with new models on the market and a growing interest in narrow gauge. In my way of thinking, the side dump is the most fascinating prototype for ore haulage and many modelers of mining operations are missing a bet by not using the M.E.W. car. These cars are commonly found in open-pit operations, but they'd also be a natural for mine to smelter runs of any type. Even in HO they are short cars and a string of them would look good and take up little operating room.

In S scale they would probably represent 9 yard capacity cars, while in O scale they'd be about 5 or 6 yard

cars. ("yard" refers to cubic yard capacity of a single car). They make ideal On2, On2½, and On3 mining cars above or below the ground. They have another use, in the metals industry, that isn't too well known. They have been used to haul away the residual waste by-products of the smelting and milling processes. Power? Suit yourself to your favorite period and prototype.

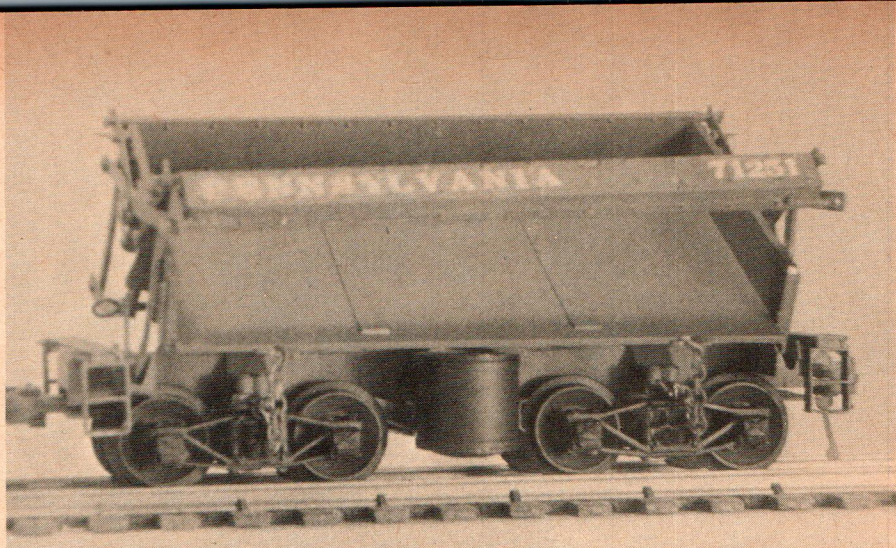
Maintenance of the way and quarrying. Every pike should have maintenance of way equipment and the side dump car is the car for hauling ballast, carrying debris from slides, and doing various railroad improvement work. HO'ers will use the kit as built and so will the S gaugers with a change of trucks. The car would even look good in 4-wheel form on O standard gauge. This type of car should not be overlooked by O scale trolley modelers as a prototype that will negotiate sharp streetcar trackage. Narrow gauge pikes need maintenance too, and the M.E.W. car, modified, will do the job. For the ultimate in smallness and simplicity, refer to the picture of the D&RGW three foot one-way tipper.

Quarrying is actually a form of mining that is often tied in with maintenance of way and construction. If a modeler wants the side dump for quarry use, he doesn't have to dig a pit in his layout. A siding built next to a cut will do the job. Don't forget to check the dime stores for cheap toy power shovels in sizes near to your scale. Some of these toy shovels look quite plausible when given a little attention, especially some painting.

Dumper in HO Scale

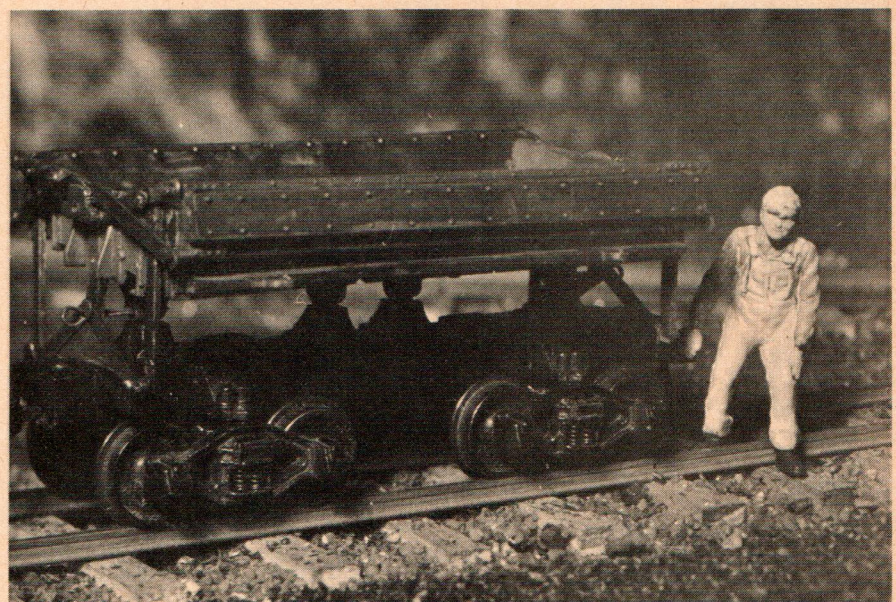
OK, HO modelers, your job is easy. The kit is designed for you; even comes pre-lettered for Pennsy, Baltimore and Ohio, Santa Fe or Southern Pacific. Pick up one or more (you might as well buy more as you'll end up doing it eventually and you can build the cars on the assembly line basis faster than one at a time) kits at your local hobby store or direct from M.E.W. You'll need the following tools: small screwdriver, small center punch, modeler's hammer, and modeler's files. You'll also want to have a small wooden block for tapping, a couple of rubber bands, and Ambroid White Glue. Needle nosed pliers would be good to have around but they aren't really necessary for the job.

Now, we're not going to run through the whole procedure of construction because you can read the kit plans, but there are some points of construction and modifications that should be called to your attention. Your first decision is whether you wish to build the kit as the air actuated prototype or as the manually operated type without the air cylinders. Leaving the cylinders off will make the job easier and generally will give the appearance of an older model dumper. You will eliminate



HO version of M. E. W. car, as built from kit, shown in dump position. Compound action of end levers automatically lift side boards when body is tipped. Car can dump in either direction.

Gast's On2½ side dump car, converted from M. E. W. HO model takes on new look next to scale O man. Changes include sprung trucks, and removal of center trunions and large underbody air tanks.



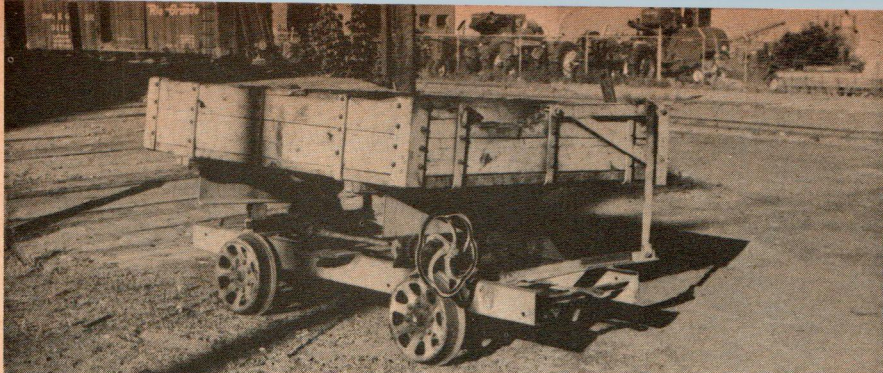
several steps in the plans, they are: "Sub-Assembly 1A and 1D" and you will simplify "Sub-Assembly 1B" greatly. Horn couplers are provided but the coupler pockets will take most popular types.

If you really want to make it a vintage piece of rolling stock use the High Ballers Link and Pin couplers available from M.E.W. for 69 cents. These are plenty of fun to use and are good for S and On scales as well as HO. The trucks that come with the kit are unsprung archbars. These are well-detailed and serviceable, but you may want to get fancy and install sprung trucks. If you want a more modern type car you would install the Bettendorf type truck and build the car with the air cylinders. The lever assembly which lifts the doors by compound action does take a bit of patience but I've put 'em together and I'm notoriously short of this virtue. Although this kit can be made up for use in Sn and On gauges it is just too wide for HOn3 and is

not stable on HOn3 trucks—it has already been tried and it doesn't work.

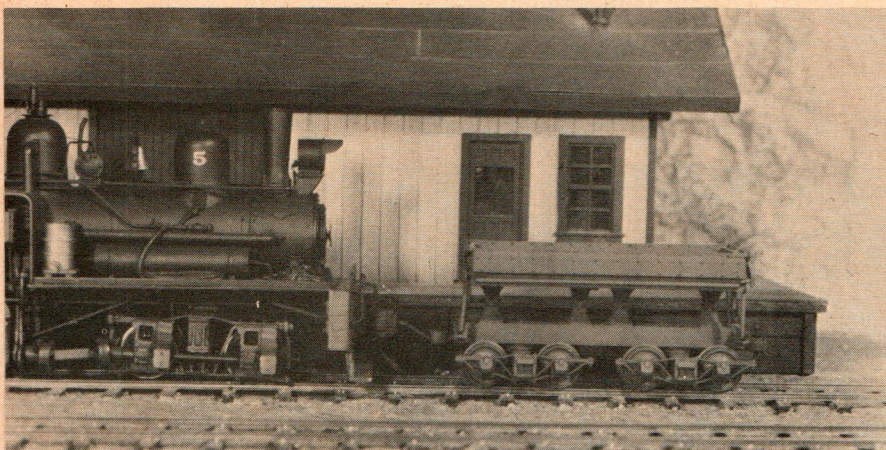
Dumper in S and Sn

S gaugers will have no more work than the HO modelers. Have the same tools available and get ready to build a side dumper that will measure 16½ feet long and 8 feet wide in S scale. If you want a standard gauge S scale car, you build the kit as directed leaving off the air cylinders. Northeastern S scale Gould trucks mount perfectly in place of the regular HO trucks. The stabilizers on the car's underframe rest snugly upon the bolster pads of the S gauge trucks just like the change was meant to be. For S scale standard modelers who want a 4-wheel side dumper, check under the On conversions below. Now, for S narrow gauge conversions. Sn3½ is becoming popular as an easy to build narrow gauge because HO trucks and modified HO locos are used. Sn3½ modelers will make the side dump kit as per in-



Three foot gauge one-way side dump used in m of w service, in D&RGW Durango yard. 4 wheel side dump can be made from M. E. W. kit.

Sheldon Schwedler's On3 prize winning Shay coupled to a M. E. W. On3 side dump conversion equipped with Gilpin sideframes, link and pin couplers, and modifications which included removal of excess center trunions. Note angle of coupler links. Car tracks well.



structions having the option of air cylinder operation. Sn3 modelers can make the kit as is and only have to twist the wheels in on the axles to be in the right gauge. M.E.W. wheelsets, like many of the others on the market, are unshouldered, which means that you can adjust the gauge.

Dumper in O and On

When you were promised at the beginning that no scratchbuilding or special skills were to be involved, the promise was meant to be kept. However, if you want a more plausible O scale conversion such as the On3 job pictured with the Shay loco, or the author's On2½ shown in an accompanying photo, there will be some work to do, although it's easy work. But keeping to the promise, if you model in On3, On2½, or On2 you can build the kit as is or with the air cylinder option and you'll only have to change trucks (for On3), or regauge the given wheelsets (for On2), or run it as is (for On2½) depending upon your narrow gauge. However, to make this kit more authentic in O scale you should consider the following alterations.

Before you build the kit, take the frame casting (part CD-114) and remove the second trunions in from each end. These are the shaded trunions shown in Figure 1. The best way to remove these is by sawing in on them from two sides with a razor saw. You will be sawing crosswise to the frame on approximately 45 de-

gree angles. Do not saw below the face of the frame. If you are reasonably careful in each case, you will have two small protrusions in the place of one trunion. These small protrusions can then be easily filed away with modelers files or any small fine-toothed file. Having removed the trunions from the frame, turn your attention to the matching trunions on the body casting (part CD-111) and repeat the process. You'll find this whole operation will take very little time and will improve the appearance of the O scale conversion. It should be mentioned that the removal of the trunions will in no way affect the assembly procedure.

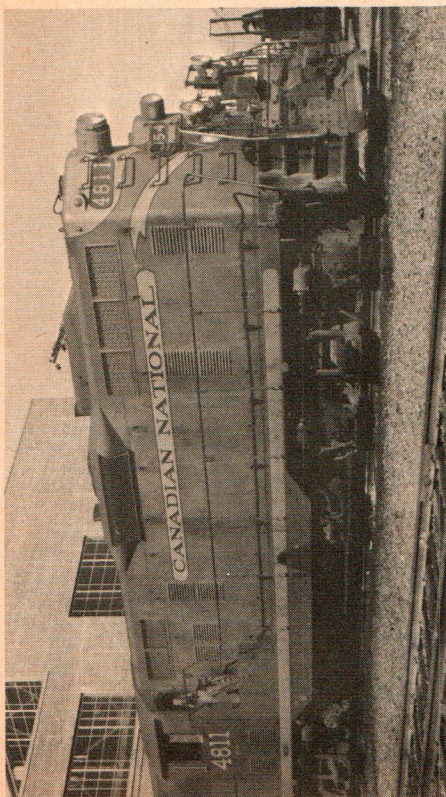
The assembly of the car then continues as per the plans although it would be wise to forget (part CD-115) the two running board-step assemblies that mount at each end of the car as they will detract from the O scale version's appearance. O narrow gauge builders will probably want to leave the air cylinders off unless they want to depict a modern prototype. As for choice of trucks, On3 modelers will probably want to use Kemtron's short-wheelbase D&RGW archbars (part TK-479). On2½ modelers can use the archbars that are provided in the kit but Kadee's T-2 HO sprung archbars as shown on the author's On2½ dumper will look better. On2 modelers can regauge their choice of existing HO archbars or they can buy Gilpin pro-

totype sideframes and use the Valley Car Works 2 foot gauge wheelsets. As can be seen in the accompanying photo, these make a nice truck, and are offered by Coronado Scale Models. For the On2 truck information and a host of On parts write to Coronado Scale Models, 1544 E. Cypress Street, Phoenix, Arizona 85006. Be sure to enclose a stamped envelope for the list.

For the four wheel dumper you will want to eliminate the trunions as outlined before. Before you do anything with the castings look at Figure 1. The anti-sway bolsters that are a part of the frame (part CD-114) must also be eliminated. These can be easily sawed off flush with a razor saw, the sides of the frame then being filed smooth. Select two wheelsets of your gauge (remember, you will want to use a larger diameter wheel on a 4-wheel version than you would in the trucks of a double truck version) and using the easy-to-make hardwood wheelset gauging block shown in Figure 2, remove one of the wheels on each axle. You'll want in addition to the gauging block shown, a modeler's anvil.

Brass tubing, which is available at most hobby stores in a display rack, is then cut slightly shorter than the back-to-back distance of the properly gauged wheels. For most HO wheelsets the ⅛" outside diameter tubing will do, but check your axles with the tubing in store and choose the right size for a free, but not sloppy fit. Look at Figure 3. After you file the ends of the tubing free of burrs, slip the tubing over the axle and replace the wheel using the wooden wheelset block. You now have a wheelset with its own sleeve bearing.

To make the 4-wheel dumper, decide what your wheelbase should be (between four and five feet is best) and then mark off the locations of each axle on the underside of the frame equidistant from the ends. Using a file, make notches where the axles will go, being careful that they are on a 90-degree angle to the length of the frame. In each case, a drop of epoxy glue will hold the brass tube bushings which you have centered up in the notches and then your side dump car will be a 4-wheeler. Be sure you file the notches in the frame before you mount the body. In this fashion the M.E.W. dumper can be an O scale 4-wheel model in On2, On2½, or On3 or O standard gauge. The standard gauge version might require some bracing of the axle bushings for the sake of appearance. S scale modelers can use the same technique for a 4-wheel car. To finish the car, O scale modelers will want to use their favorite couplers. Kadee HO couplers are popular for working On draft gear and the High Ballers link and pin couplers made for HO are also widely used among On modelers for an authentic vintage equipment appearance.



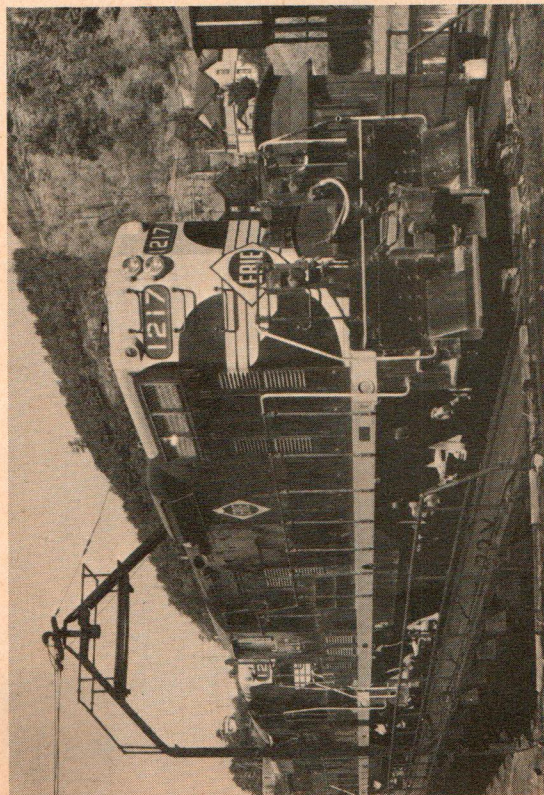
RAILROAD MODEL CRAFTSMAN

Canadian National GP-7 with outside mounted headlights plus two extra lamps mounted on the handrails gives custom look to this GMLtd engine, CNR road class GR-15. Photo from lensman Peter Cox.

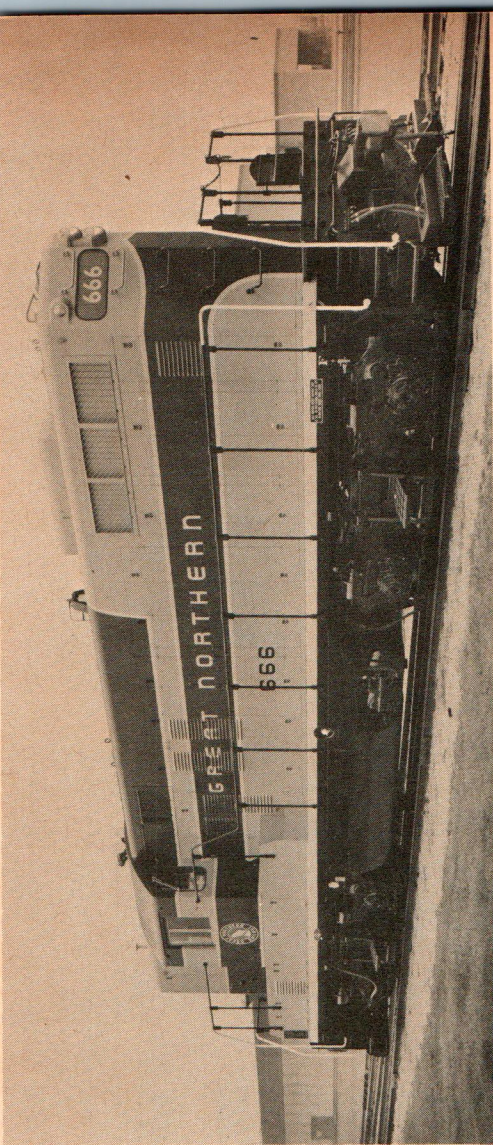
EMD's Geeps

EMD's chunky GP-7 and GP-9 designs led to a revolution in diesel locomotive design, replacing streamlining with functional design.

Hal Carstens



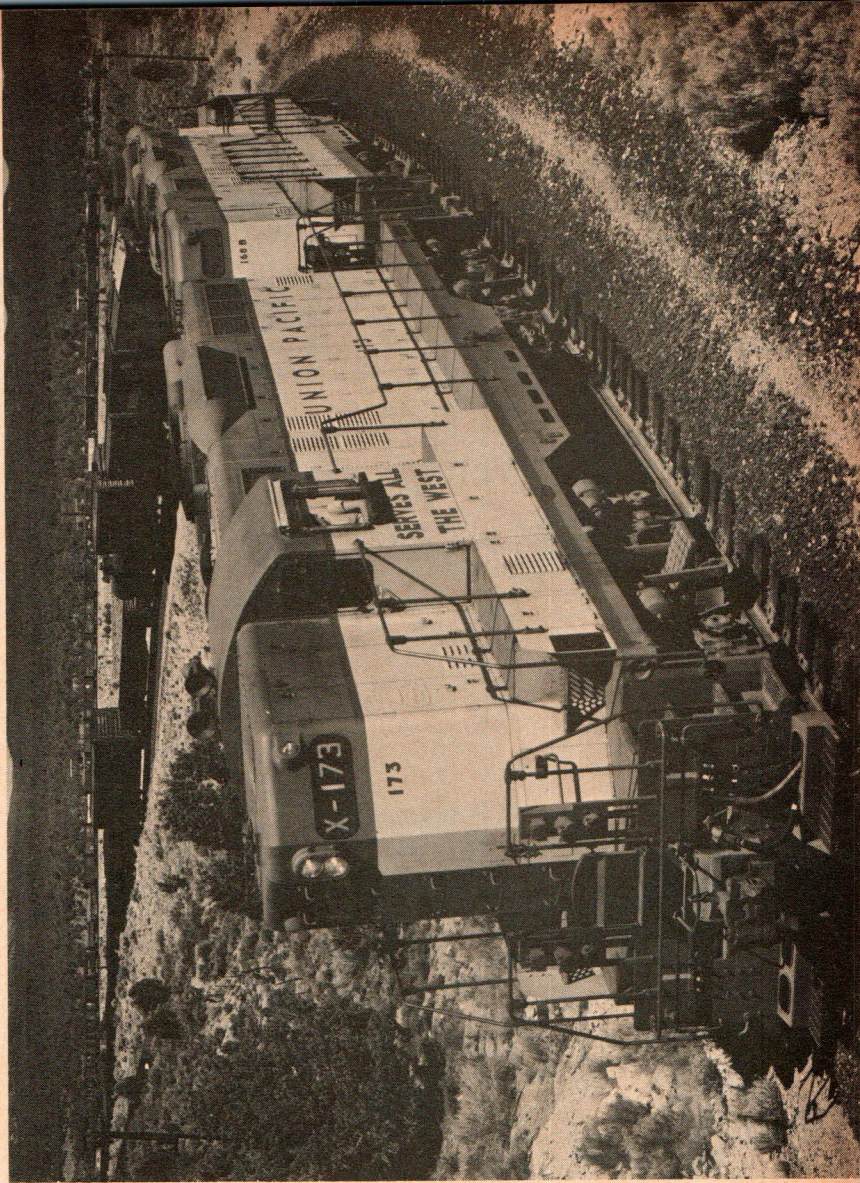
Two Erie Geeps on the turntable at Port Jervis, N. Y. Erie units are found both with and without dynamic braking gear, identified by the bulges on each side of the hood. E-L runs locos in units or from one to five, mixes them with Alco RS, and cab diesels.



Great Northern GP-9 No. 666, with what many enthusiasts feel is the most attractive of all railroad color schemes. Addition of extra detail to production models can lift them up to custom class.

Electro-Motive Photo

Snappy grey and yellow GP-9 ABA combination on the Union Pacific. Only 164 BGP-9 B units were built, most roads preferring the greater versatility of having all their power cab-equipped.



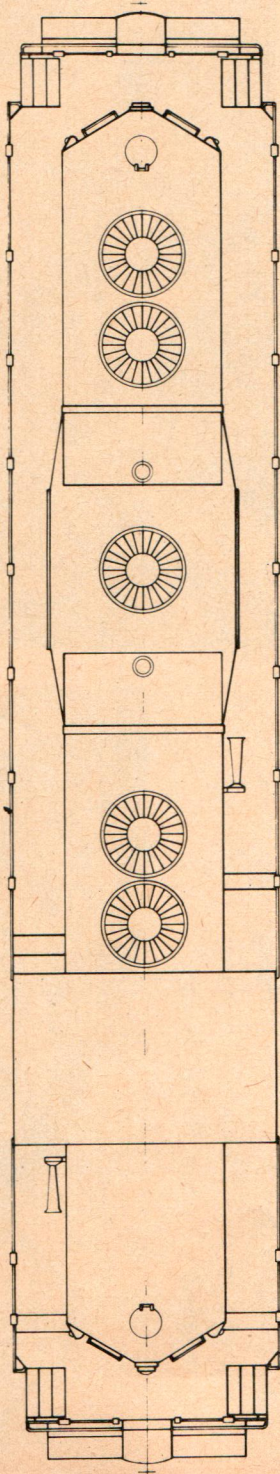
EMD GP-7 1500 hp. Road Switcher —1949-1954

Plans for earlier EMD road switchers have appeared in Railroad Model Craftsman as follows:

Model NW-4	March 1964
Model NW-5	October 1962
Model BL-2	November 1963

NOTE: Production models of the GP-7 and GP-9 are available from several suppliers in HO, S, and O gauge. See your dealer for makes and available road names.

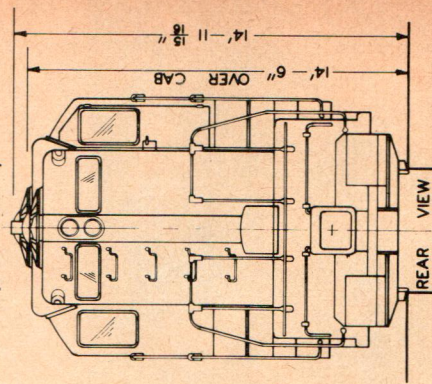
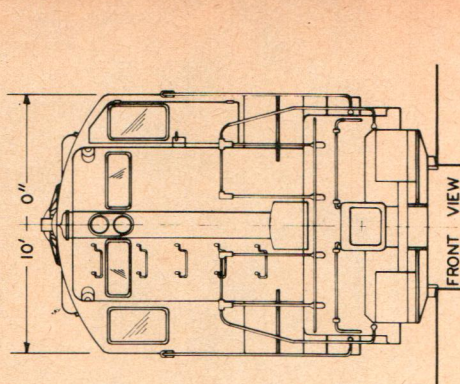
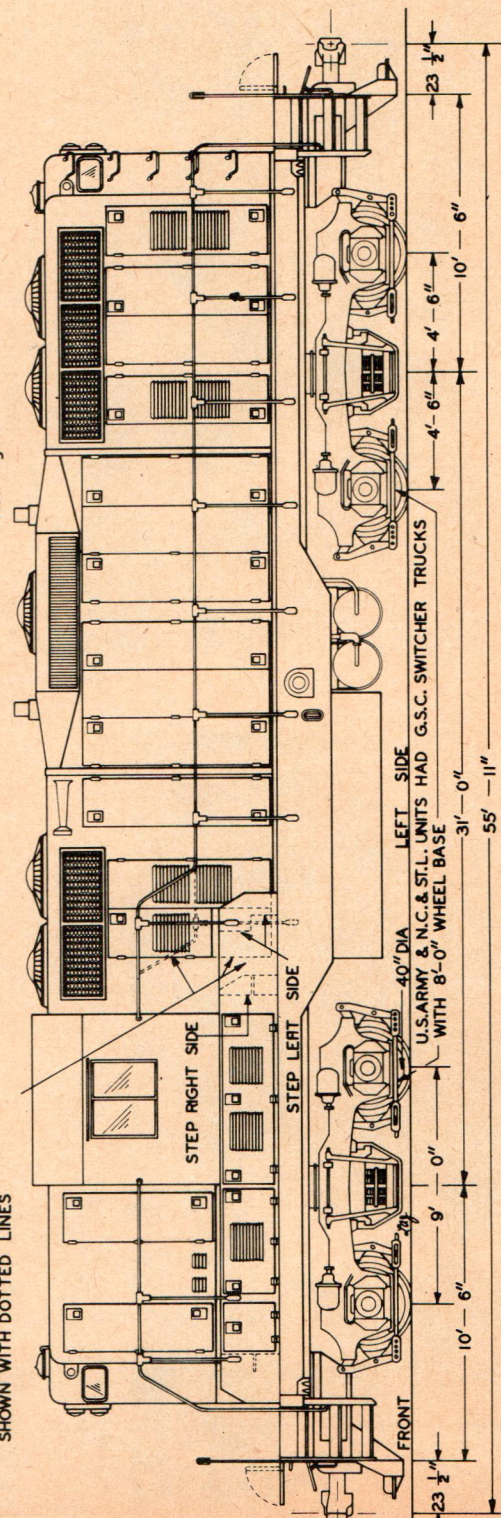
Switcher trucks rather than road trucks are distinctive feature marking GP-7 locos bought by the NC&STL, and also found on GP units sold to Army Transportation Corps. Note side mounted horn.



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Drawn by Larry Jackman

EMD DEMONSTRATOR NO 922 & VERY EARLY UNITS DID NOT HAVE THIS BOX STEP HANDRAIL & DOOR SAME AS RIGHT SIDE, SHOWN WITH DOTTED LINES



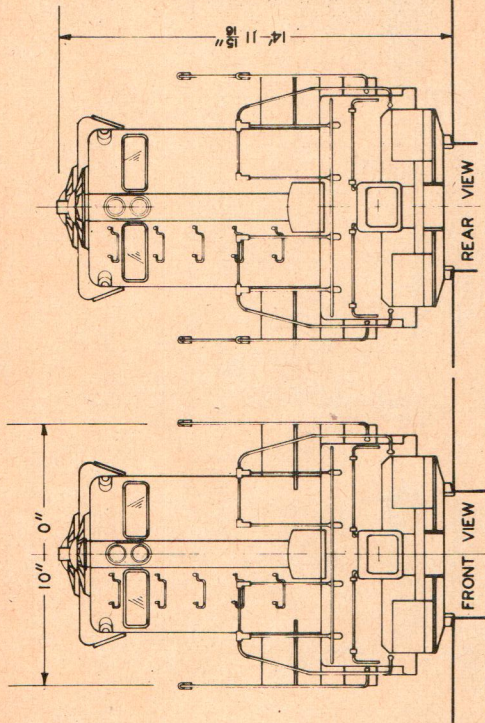
IN 1939, Electro-Motive put a 1000 hp. switcher body with an oversized cab on a pair of FT road diesel trucks and sold it and a handful of sisters to the Great Northern, as a new NW-3 type locomotive. That same year, Electro-Motive stretched out the diesel body and created two 900 hp. road switchers for Missouri Pacific, using trucks from EMD box cab demonstrators 511 and 512, creating a new NW-4 class.

In 1946, the need for a locomotive with greater versatility than found in either yard or road locomotives again asserted itself and this time EMD came up with a design not unlike that found in Alco's road switcher series. Electro-Motive's new model NW-5 developed 1000 hp. and could furnish train heat. Only 13 units were built, going to Great Northern, Southern, and Mississippi Export.

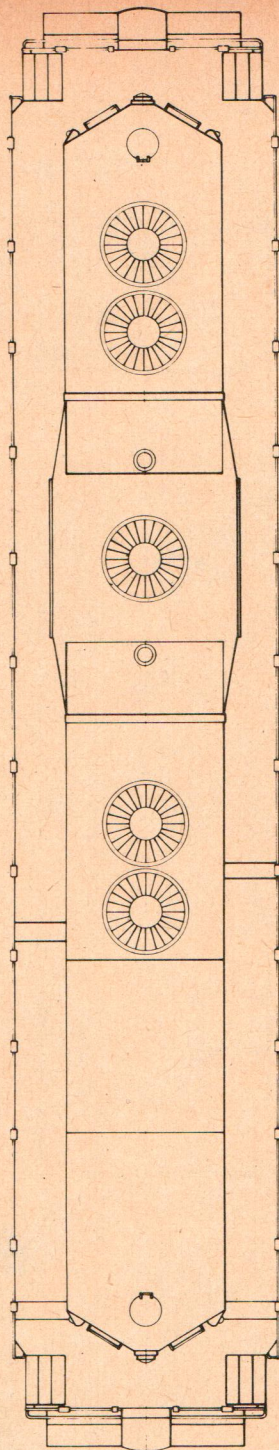
A streamlined attempt at a road switcher was introduced in 1948 as model BL-2. This locomotive found favor with such roads as the Monon, Boston & Maine, Bangor & Aroostook, Chesapeake & Ohio, Missouri Pacific, and Western Maryland. Designed for branchline service, and hence its designation BL; the loco was used in a wide variety of service.

In 1949, Electro-Motive hit pay dirt with a new 1500 hp. general purpose road switching locomotive, of which 2755 were built up through 1954. Five cabless GB-7 B units were also built, becoming Santa Fe Nos. 2788A-2792A. The GP-7 was replaced in 1954 by the 1750 hp. GP-9, having virtually identical silhouette although measuring three inches longer over coupler centers. GP-9 production totalled 3437 units with an additional 164 B units without cab also being produced. The GP-7 and GP-9 were produced in both the United States and Canada.

The GP-7 and GP-9 are spotted most easily by familiarizing yourself with louvre variations on the hood. Other variations are indicated on the plans. Both units were offered either with or without dynamic braking, shown as a bulge on the drawings, centered atop the hood on each side.

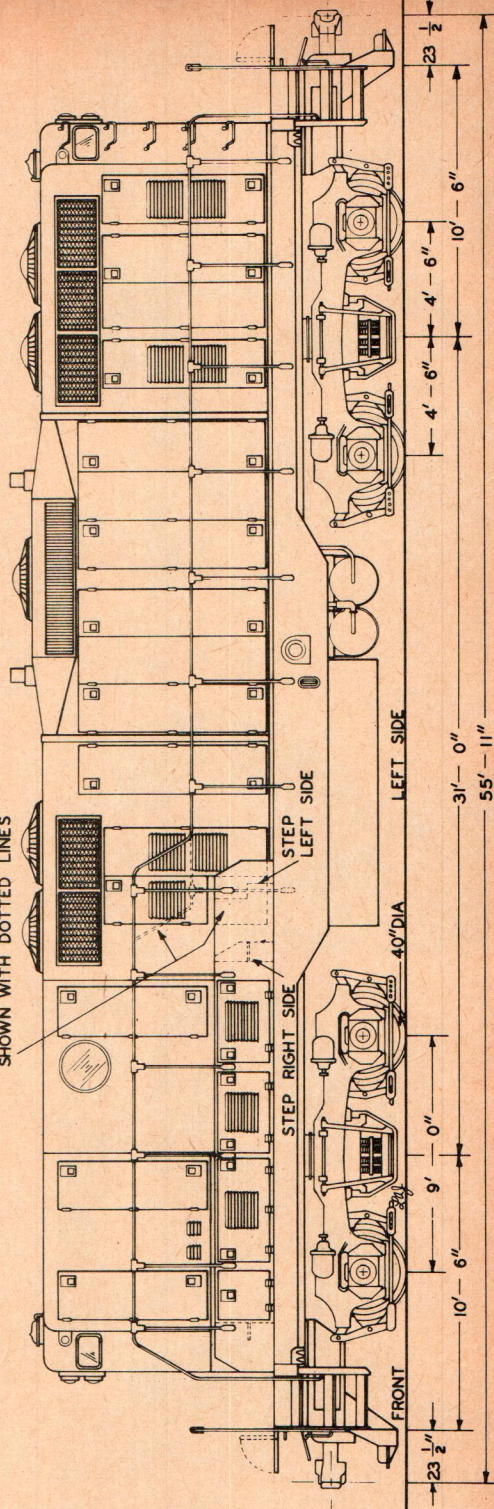


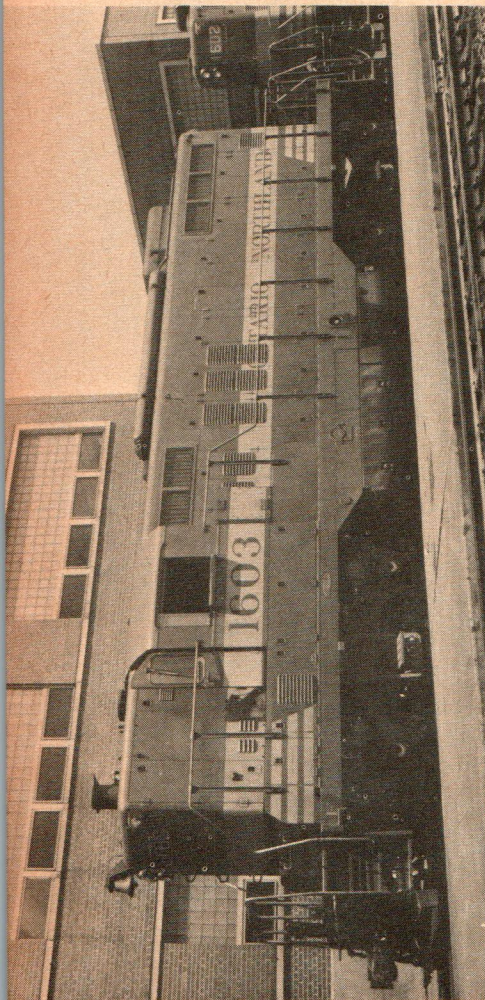
A frigid Jan. 19, 1952, saw Boston & Maine GP-7 1561 roll into Boston on the head end of a commuter run. B&M units were then painted maroon with yellow striping and Minute Man herald on cab.



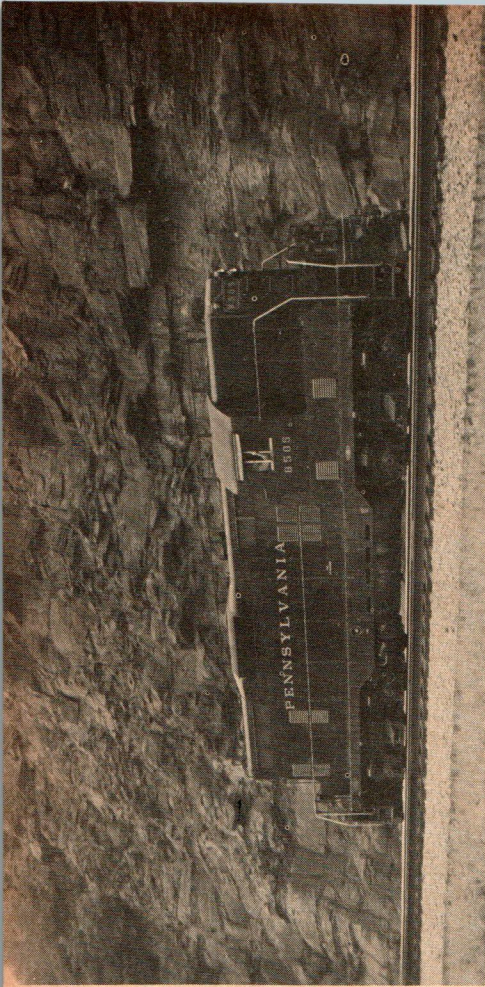
EMD GP-7 1500 hp. Cabless B Unit

RIGHT SIDE HANDRAIL & DOOR SHOWN WITH DOTTED LINES

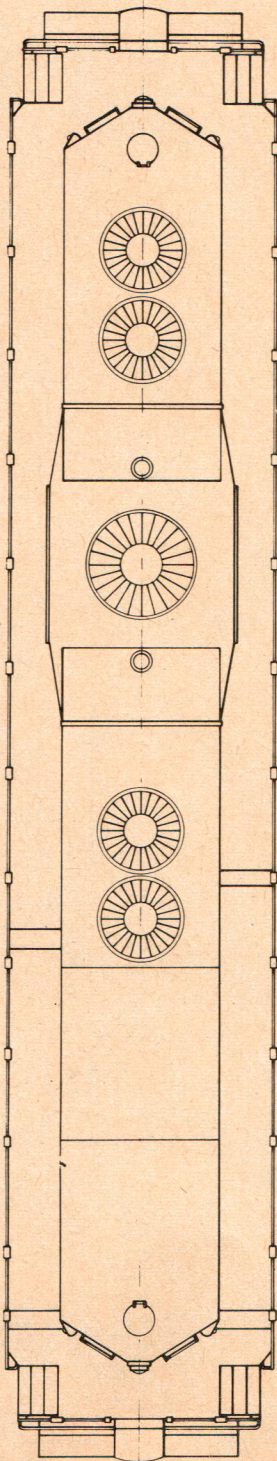




Peter Cox snapped this Canadian-built Ontario Northland GP-9 with nose mounted bell, reminiscent of steam days. Road was formerly the Temiskaming & Northern Ontario; is independent.



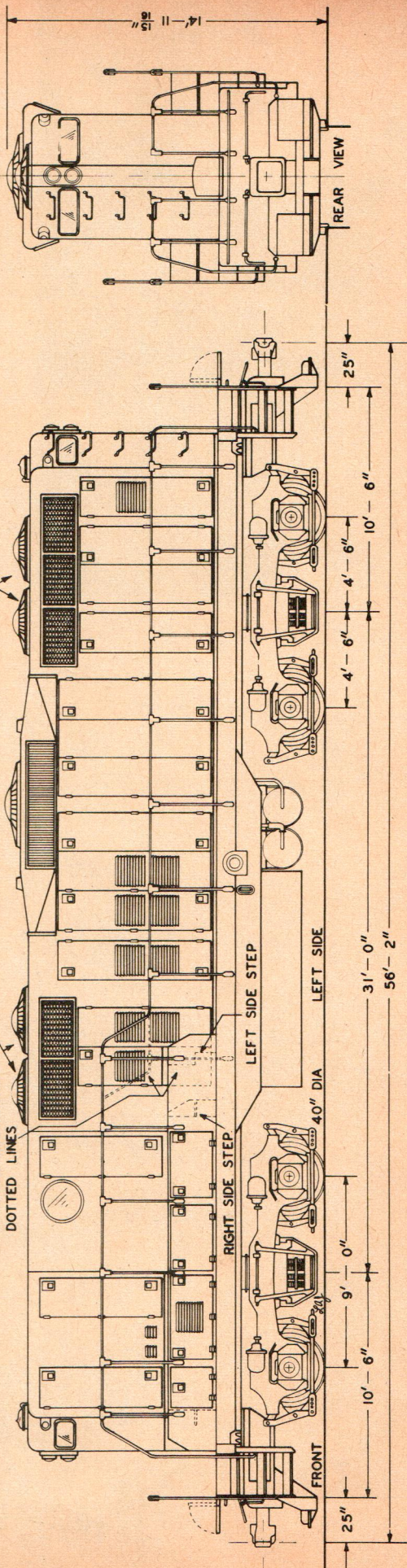
Black Pennsylvania Railroad helper engine 8505 equipped with dynamic braking, swings around Altoona's famed Horseshoe Curve. Pennsy radio antenna system is rarely modeled, is distinctive.



EMD GP-9 1750 hp. Cabless B Unit

2 SMALL FANS REPLACED BY 1 48" FAN AT EACH LOCATION ON LATE UNITS

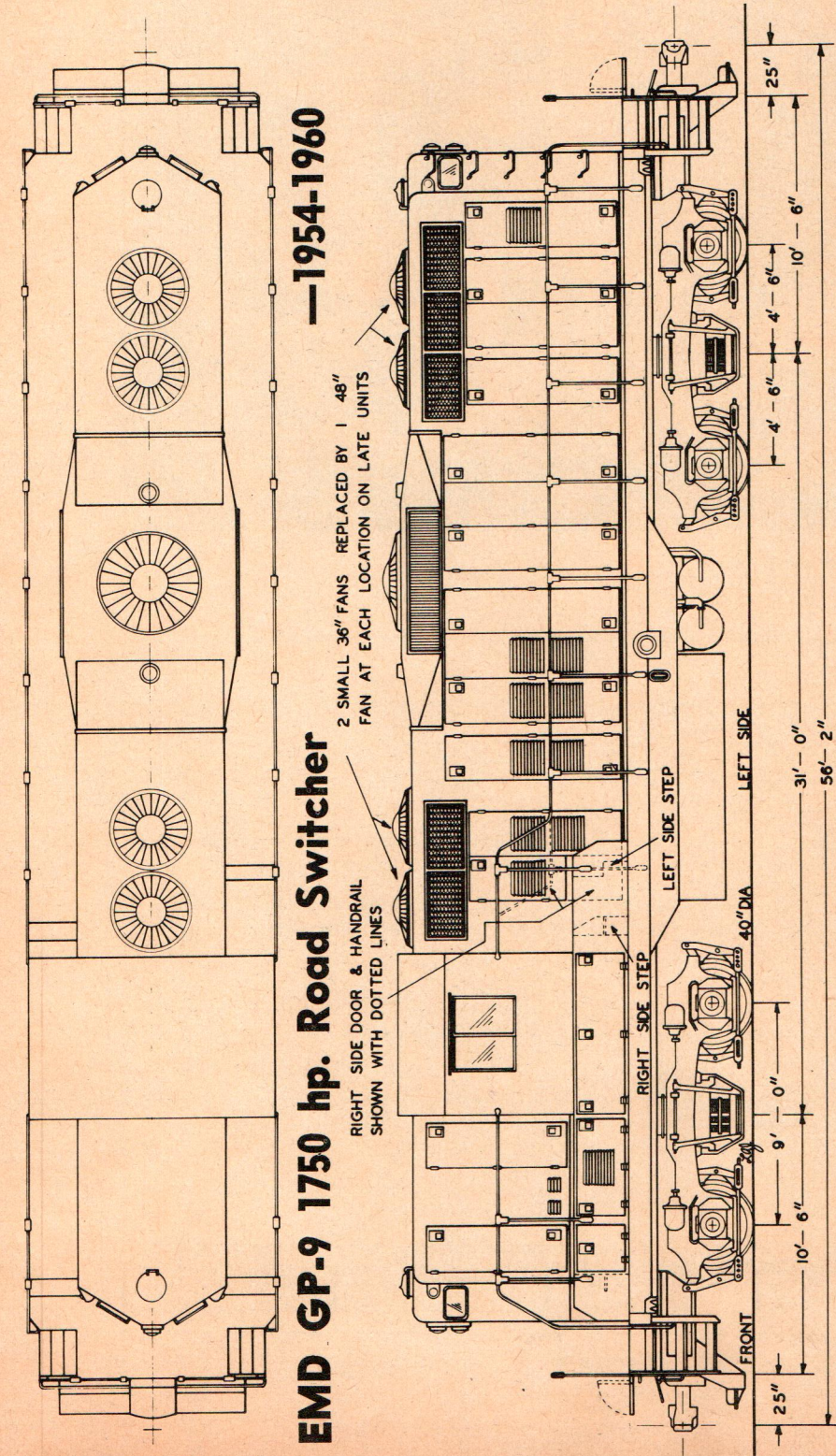
RIGHT SIDE DOOR & HANDRIAL SHOWN WITH DOTTED LINES



EMD GP-9 1750 hp. Road Switcher**—1954-1960**

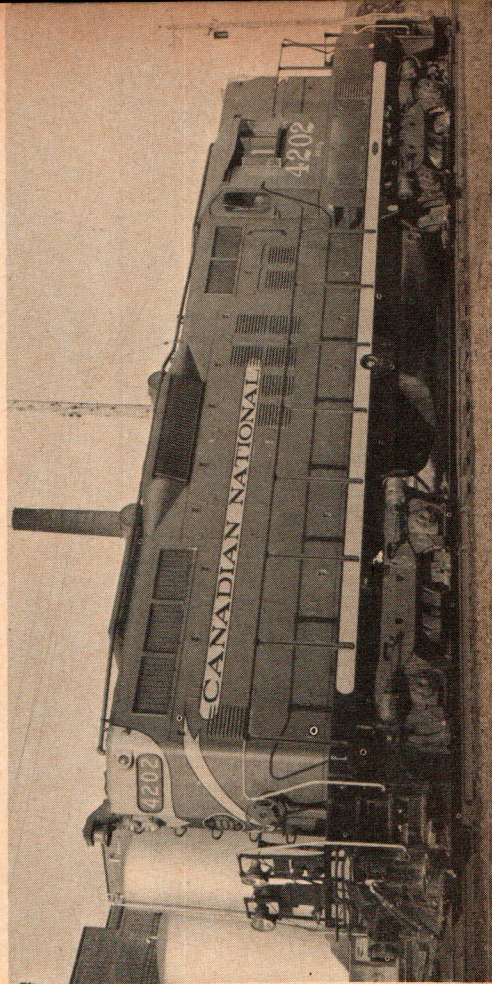
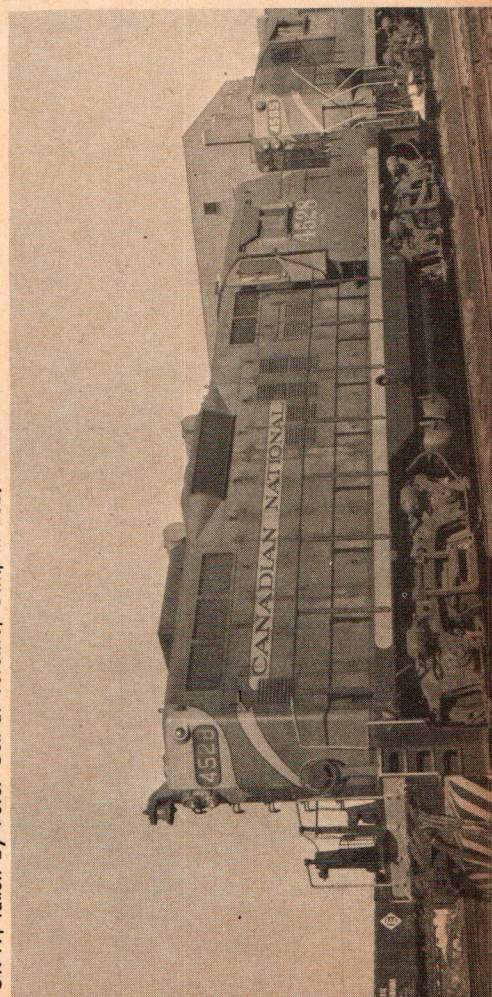
2 SMALL 36" FANS REPLACED BY 1 48" FAN AT EACH LOCATION ON LATE UNITS

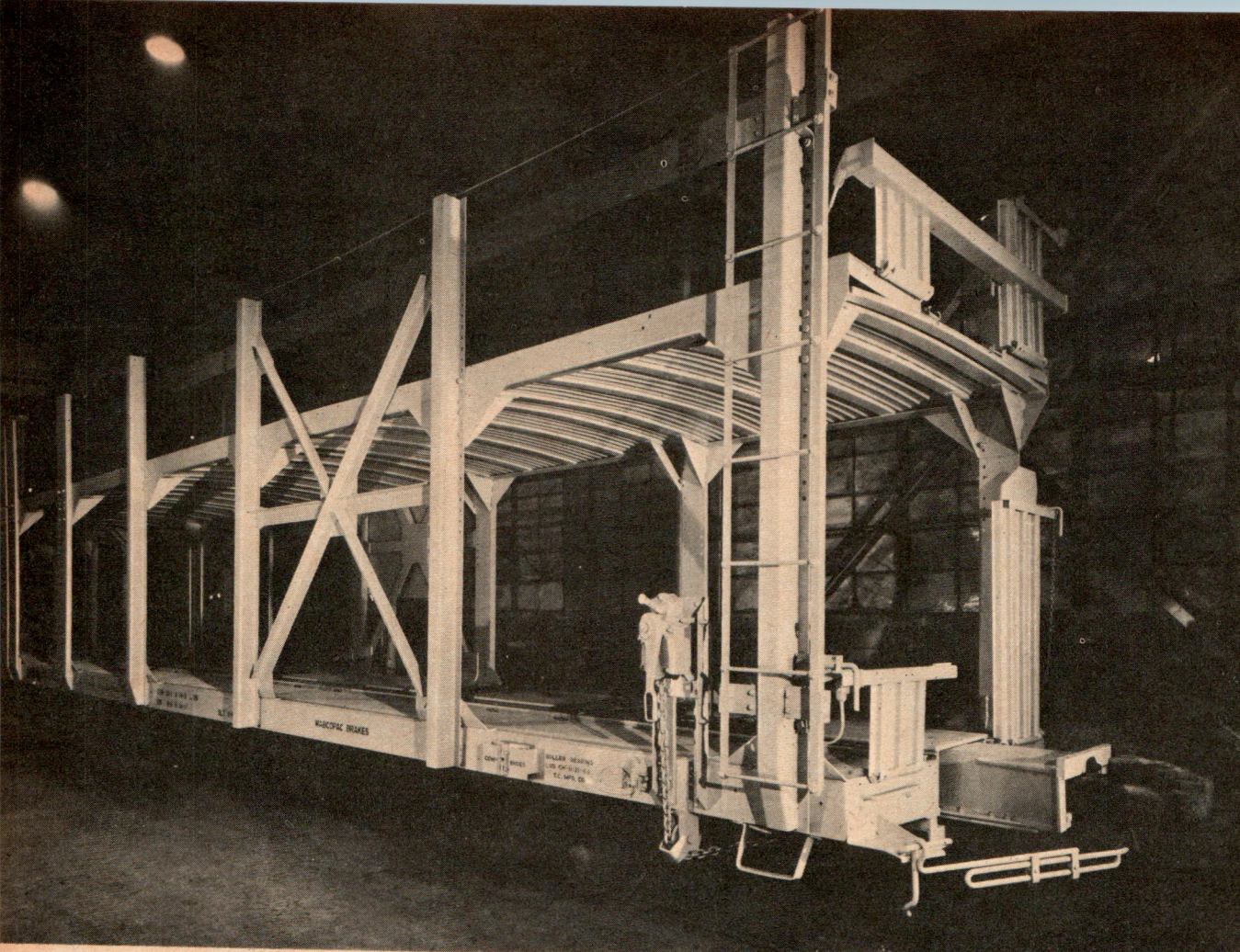
RIGHT SIDE DOOR & HANDRAIL SHOWN WITH DOTTED LINES



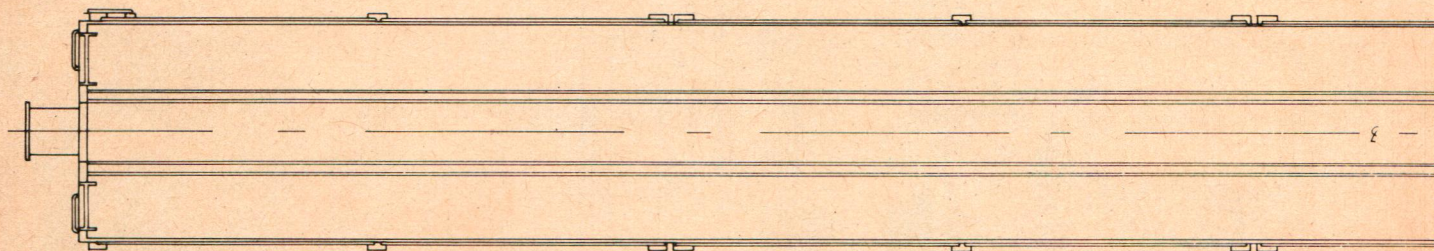
Rare road type pilot and top mounted bell are but a few of the unusual details on this GP-9, Canadian National 4528, road class GR-17, taken by Peter Cox at Toronto, Ont., in Feb. 1964.

Another CNR GP-9, road class GR-17, No. 4202 is loaded with details that differ from Eng. 4528: side frames, pilots, steps, handrails, roof piping, tank details. Photo from Peter Cox.



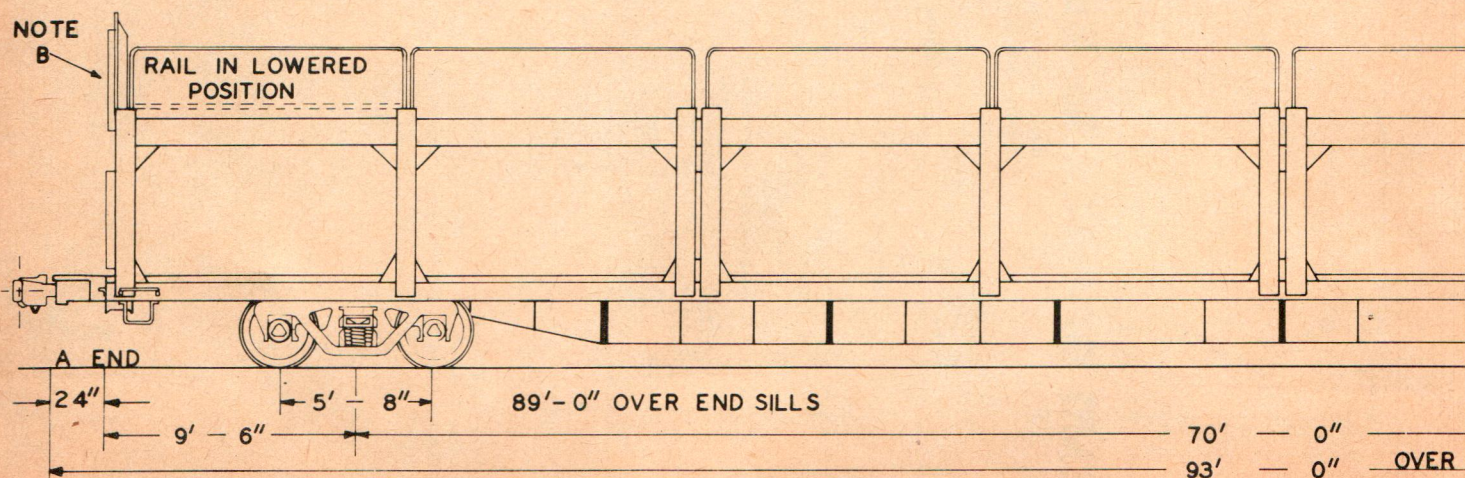


Closeup view of 89 ft. bi-level car showing side and end detail



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See RMC April 1966 page 34 for plans of 89 ft. Thrall flat car equipped with Dana-Spicer tri-level auto racks.



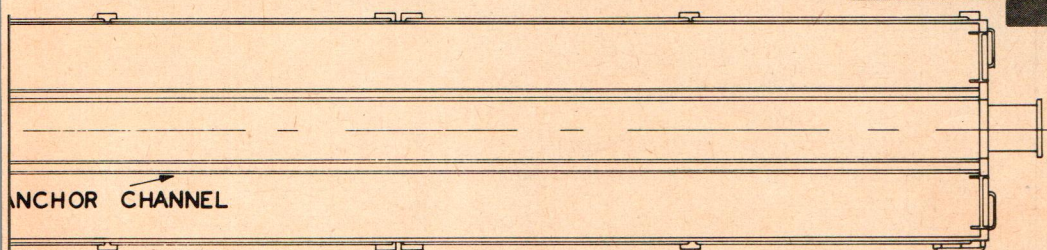


Frisco No. 3300 bi-level rack car with load of 8 pickup trucks.

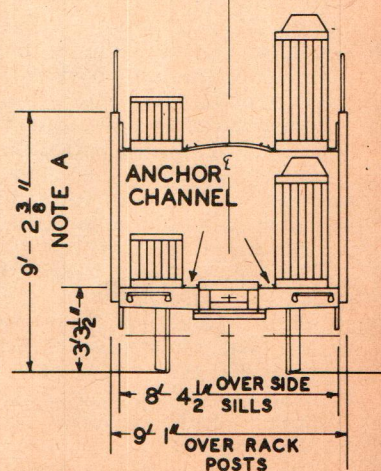
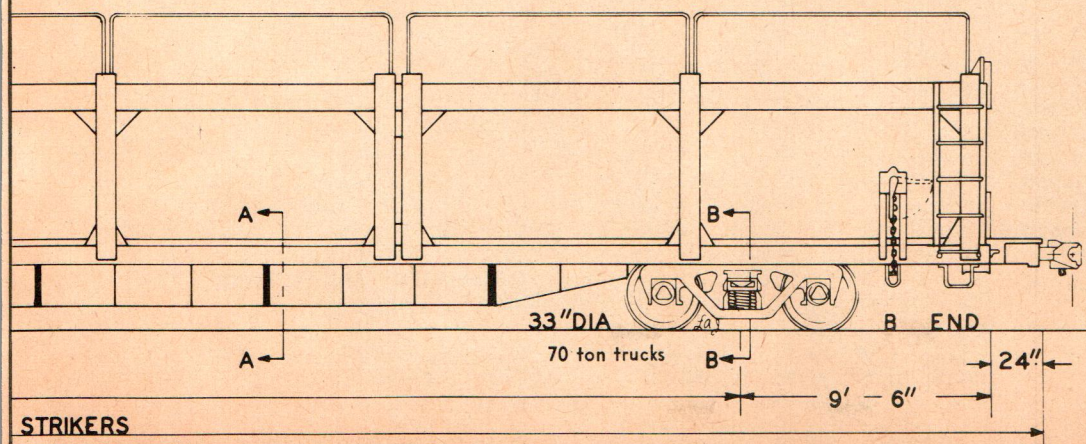
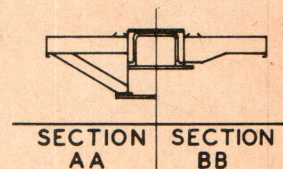
Thrall Car Mfg. Co. **89 Ft. Flat Car** **Equipped With Dana-Spicer Corp.** **Bi-Level Auto Racks**

drawn by Larry Jackman

End view of 89 ft. Thrall flat car with full cushion underframe and bi-level auto racks, as built from SL-SF. Rack details vary.

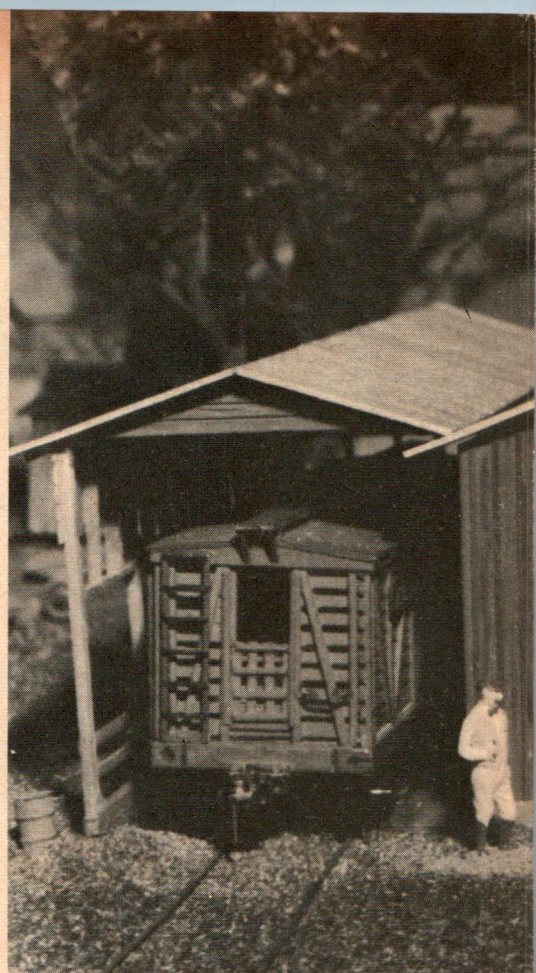
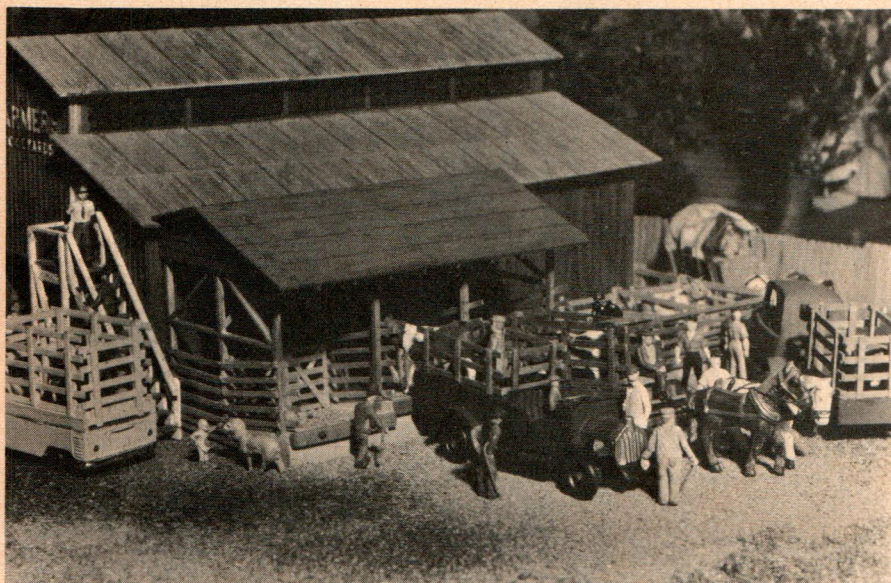


NOTE A: Racks are based on Dana-Spicer specifications with racks at $62\frac{1}{2}$ " apart. Racks can be built from a maximum $127\frac{1}{2}$ " spacing to a minimum $57\frac{1}{2}$ " in $1\frac{1}{4}$ " steps. NOTE B: Bridge plate on top deck lays flat on floor when car is in empty movement.



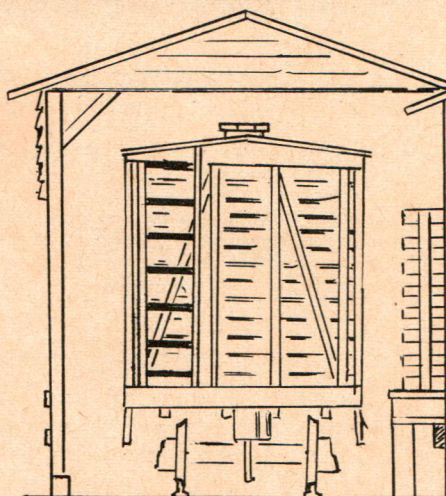
Stock cars are put to good use on your pike when you install this old fashioned farmer's auction on your railroad, built entirely of wood pieces.

Stock Auction Day by E. L. Moore



CATTLE and hog auction each Tuesday! Special saddle horse and sale on Friday! Private Sales Daily! There's never a dull day at the Farmers Stockyards. Sales begin at 1 p.m. at the auction arena inside the barn, and by noon the holding pens are pretty well filled with stock. Farmers, stockmen and buyers gather in groups discussing weather, crops and stock. The citizen's nose recoils from the first whiff of pungent stable smells but eventually accepts them. The sounds and smells bring nostalgia and memories of a farm boyhood. Stock-auction employees, their emblematic walking sticks in hand, direct trucks to unloading chutes and oversee the unloading of stock. At the chutes, each cow as she goes down the ramp has a round, numbered disk slapped on her rump as identification. Inside the labyrinth of pens colored helpers, sticks in hand, prod the stock into movement and onto the weighing scales, then into the proper pens. The weigher records weight and number of head as they are shut in the scale enclosure and produces for each owner a receipt.

Finally, as the sale begins, each lot



or individual, as the case may be, is driven into the auction arena to be viewed by the buyers. Cattle auctioneers use the same sing-song lingo which in the past has been popularized on radio by tobacco auctioneers. He and a recording clerk occupy a booth at one end of the arena and there, microphone in hand, spouts forth his jargon, his gaze meanwhile roving over the audience alert to the

least sign of acceptance, keeping the sale going at a rapid fire pace. After the sale, buyers load up their purchases, whether by truck or stockcar on the siding, and by evening the big barn is empty again.

This, then, is stock auction day. It was not too easy to compress a 90'x-200' prototype barn, plus outlying sheds, into a model occupying a space of only 7"x10", but I think I've cap-

FARMERS STOCKYARDS

← Cattle is unloaded at the chutes from modified vehicles bought at the hobby shop.

The photographer has his trusty old camera on the tripod and is lining everybody up for a photo. Stock cars are loaded in shed at left. Ageless design could be 1880 or 1966. Model is wood.

FIG. 1 - FRONT VIEW

2 pieces acetate, each $9\frac{1}{16}'' \times 6\frac{5}{8}''$
for clerestory light
40' .020x1/16'' or 20' .020x1/8''
stripwood for fencing

Better sit down and order a carload of lumber from Mr. Northeastern.

Beginning with the concrete floor which also serves as the foundation, cut $\frac{1}{8}''$ balsa to 40'x50'. This will, of course, entail piecing. At the front where the door will appear, bevel 12' wide space down to a thickness at the edge of about 3" ($1\frac{1}{32}''$). Paint to simulate concrete. I mix a bit of black in some white, then add a touch of yellow.

Now, the walls. Cut your capped siding as shown in Fig. 1, 14' at eaves, 19' to bottom of clerestory, 23' at top, and 26' at peak—by 40' wide. This, too, will necessitate piecing. In fact I reinforced all the walls with $1\frac{1}{16}''$ balsa, thus giving finished walls $\frac{1}{8}''$ thick. The rear wall has no openings. The left wall, 14'x48', has a 5'x7' door opening set 3' up (making it 4' when on foundation) leading to the stock car shed. (See Figs 2 & 4). The right wall has a 5'x7' doorway leading to the stock loading chutes.

It is to the front wall that our energies will be directed. A central door opening 8'x12' is cut out and a piece of $3\frac{3}{32}''$ wood angle shape 24' long is cement along the upper edge. Then, when the doors are installed they will presumably ride an overhead track. And wouldn't you know it, mine have apparently jumped the track, and George a-settin' right there, was too lazy to put it back on. Always some-

tured the hustle and bustle of the place without too much sacrifices. Obviously, this is no dollar project. Here's what it takes to build it, in HO:

- 14" $1\frac{1}{8}'' \times 4''$ wood for floors and other purposes
- 20" $1\frac{1}{16}'' \times 3\frac{1}{2}''$ capped siding, $\frac{1}{8}''$ spacing
- 24" $1\frac{1}{16}'' \times 4''$ wood, wall reinforcement and roof supports

- 15" .040x3 $\frac{1}{2}''$ corrugated roofin, .040 spacing
- 7" $1\frac{1}{16}'' \times 3\frac{1}{2}''$ sheetwood for shed flooring
- 6" $1\frac{1}{32}'' \times 4''$ wood for shed roof and auction arena
- 15' $1\frac{1}{16}''$ square wood for framing and pen posts
- 3' $3\frac{3}{32}''$ square wood for framing
- Stripwood (small amount) for stairs, clerestory framing

thing. The doors themselves are made of scribed sheathing, framed, and a smaller door cut in the larger one. An office door opening, 3'x6½' needs to be cut and cased with 1/32"x1/8" stripwood, and a door set in. A sheltering gable extends out over it 18" and a sign OFFICE is displayed. The door above is faked, that is, it has only a 2'x6' piece of scribed sheathing set between the caps. It is purposely small so as to accentuate the size of the front of the building. At this point you may as well cement the front and side walls to the floor so as to better judge the set of the stairway. It might be argued that the stair should be left until the last, particularly if one details the barn interior—but I built mine first and if

properly braced so that the legs or posts are rigid no damage is likely.

The stair landing is a 3'x6' piece of 1/16" wood with an overlay of 1/32" wood, sanded down then scribed. Cement this in position with top at 11' height. (What appears to make the landing look 7' long is the top step of the stair.) Two 12½' posts of 6"x6" stripwood are set at the corners, their bottoms resting on a base of 9"x9" timber. For the stringers or sides to the steps I used 1/32"x3/16" stripwood, and here's a hint to make the cutting of the sawtooth pattern easier. Sketch the steps on paper, then cement the paper to your stringers, then cut or notch out the steps. Set these in place and add 1/32"x1/8" treads, add the other two

posts and then the 1/32"x1/16" stripwood railing. Anchor steps and posts at bottom with braces.

A paint job followed, consisting of Boxcar Red and Caboose Red, equal parts, with a dash of yellow thrown in. Trim was white, of course. After the decals were placed this was weathered with a dirty gray wash just enough to take the curse of brightness off things. Champ decals were used, and I might add I had previously sanded the caps down a bit where the decals were to fit. The upper line was 1/4" Block Gothic, and the lower line 1/8" Modern Gothic.

When I began the project, I had no intentions of detailing the interior. Perhaps I was somewhat awed by the immensity of the interior of the prototype barn and its multitude of pens which were almost too numerous to count. However, I ventured an experiment or two which seemed encouraging; then other ideas began to percolate and before I realized it I was hooked. For one thing I didn't think I had an adequate amount of the right sort of lumber. While 1/32" stripwood can be used, .020 thickness is preferred. I considered sanding 1/32" strips down, but being on the lazy side that did not have too much appeal. I ended up by using .020x1/8", splitting it in two, plus some old Japanese matting wood which was a little wider and could be split in three. If you do any splitting, here's a hint. Split no longer a piece than is necessary, and make several light strokes with your razor blade rather than attempt it with heavier strokes. I used 6"x6" (1/16" HO) posts and uprights and those along the wall extended the full height of the wall. All others were 5½' and all fences



1890 vintage stock car has been rolled into siding under shed but clearances will fit more modern cars as well. Roof of the auction buildings is simulated corrugated metal. Obviously, it is attention to small details that makes the model come alive.

FIG. 2 - LEFT SIDE VIEW

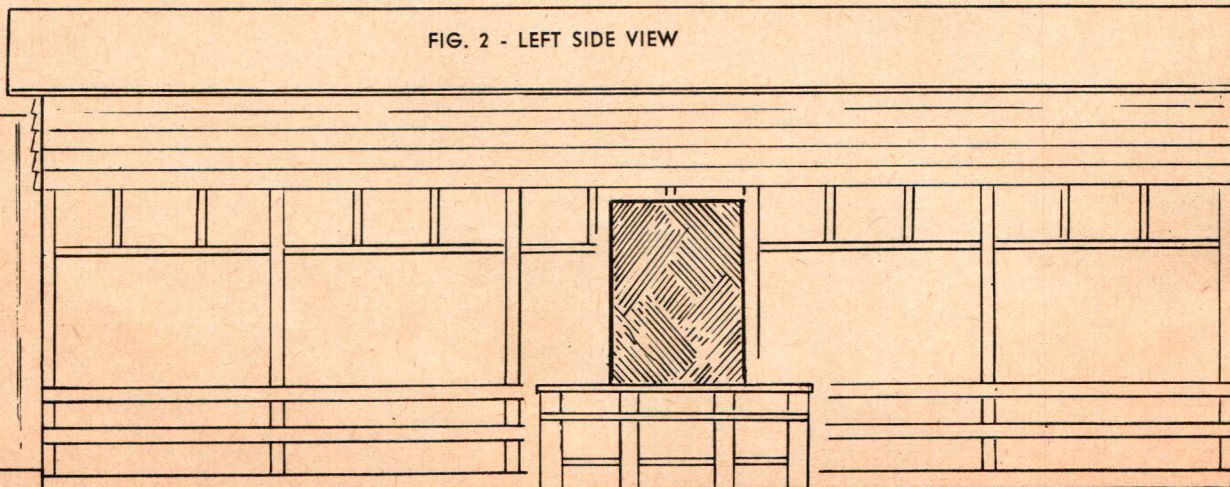
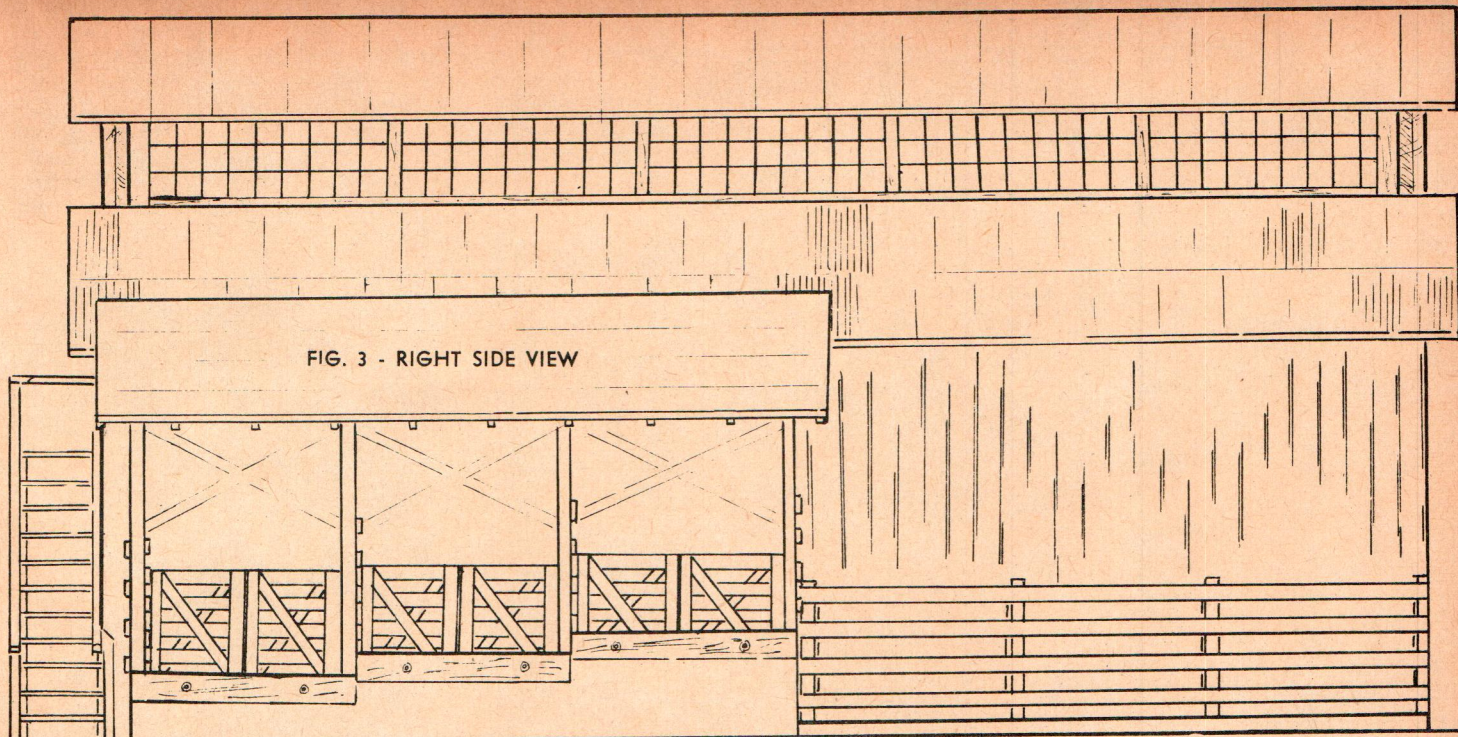


FIG. 3 - RIGHT SIDE VIEW



were a uniform 5' in height, requiring on an average of five boards. It really turned out to be an interesting task once I'd got some system to it. I'd select a section of fence, make a sketch on smooth cardboard of the location of the posts, then barely tipping each end of each post with cement, press it down in the proper location. After that I had only to cement on the precut boards, fake the gates with a couple of uprights and a diagonal. Then slipping a blade under the posts I'd pry the section loose, turn it over, add another diagonal member to each gate. Next, slide the fence along a sanding board to level up the posts on the bottoms and give each a touch of cement and set in place. After that of course came the divisions between pens which had to be done board by board. And let not the critics worry unduly about whether posts should be inside or outside. In that case you can double post each pen or even double board it.

In the far corner (Figure 4) is the 10'x12' office which is 9' high. A simulated door of 1/32" scribed sheathing leads off toward the scaler. The weighing pen has gates at either end and the scale has a large revolving indicator in the adjoining enclosure so that the recording clerk can make the proper entries. In the photograph you see a cow coming out of the weighing pen.

The auction arena occupies a central position, with gates leading in and out of it. The base is 10'x14' inside, and 7' high, built of 1/16" wood, with simulated gates at two corners. A booth at one end is built of 1/32" balsa, to a height of 14 1/2'. The seats are 18" wide and 18" high. Naturally you will want to construct this where you can get all ten fingers around it, then cement it in place when finished.

RAILROAD MODEL CRAFTSMAN

Vehicles are commercial types bought at hobby shop and converted to farm use. Figures and animals are offered by Selley, A. B. Boyd, A.H.M., and others, and are required in quantity to fill railroad cars. Small HO figures are suitable for TT, N gauges.



All the interior walls of the barn and the arena were given a wash of raw sienna with a touch of brown added, in turpentine. Fences were given a wash of raw sienna, the color of new lumber. After the arena is set in place a catwalk needs to be built from the door at the head of the stairs to the arena, as may be seen in the photograph.

On the car shed side, between pens, is a ramp leading up to the car loading platform. Details of the platform may be seen in Fig. 2. And that about finishes the interior and it will be ready for occupancy as soon as we spread some fine sawdust around. I diluted some white cement with water until a brush would spread it easily, then dabbed it in pens and

aisles, following immediately with a sprinkling of sawdust. This done, you may cement on the rear end of the barn and we'll be ready to tackle the roof.

The clerestory windows require two strips of acetate, each 4'x48'. Figure 3 shows it divided into five divisions, each containing 27 panes. I goofed slightly. Had I used 1/16" stripwood instead of the 3/32" widths on the last section it would have come out just right. Oh well. Anyway, the next step after inking the acetate is to prepaint about 5 1/2' of 1/16" stripwood, red, both sides. Then sandwich the acetate between the stripwood with a frame all around and division strips, and you've got it. Notice in the photo of the barn in-

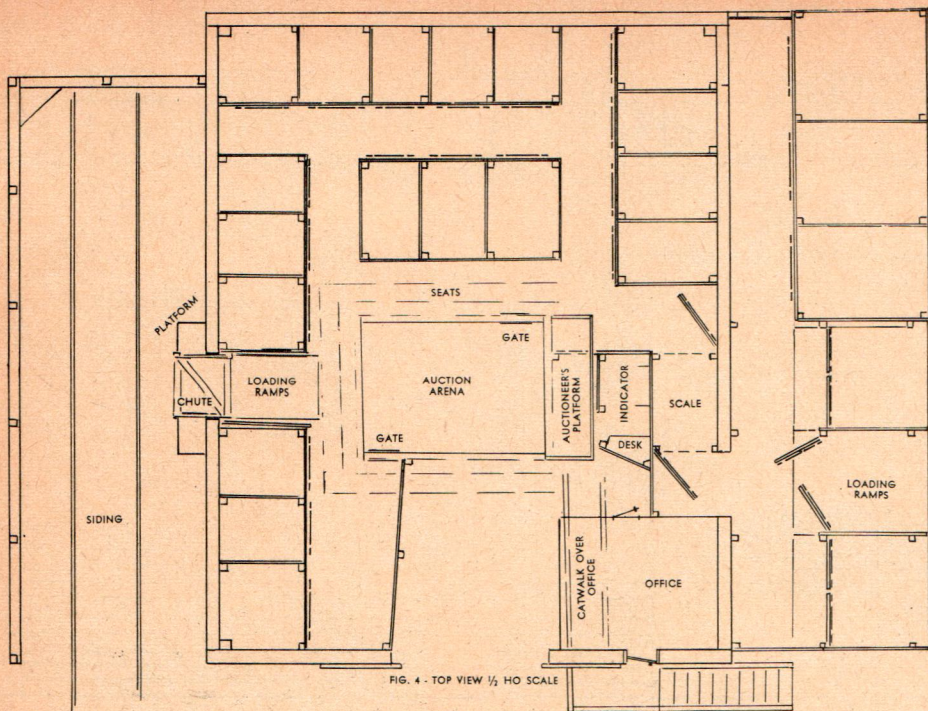
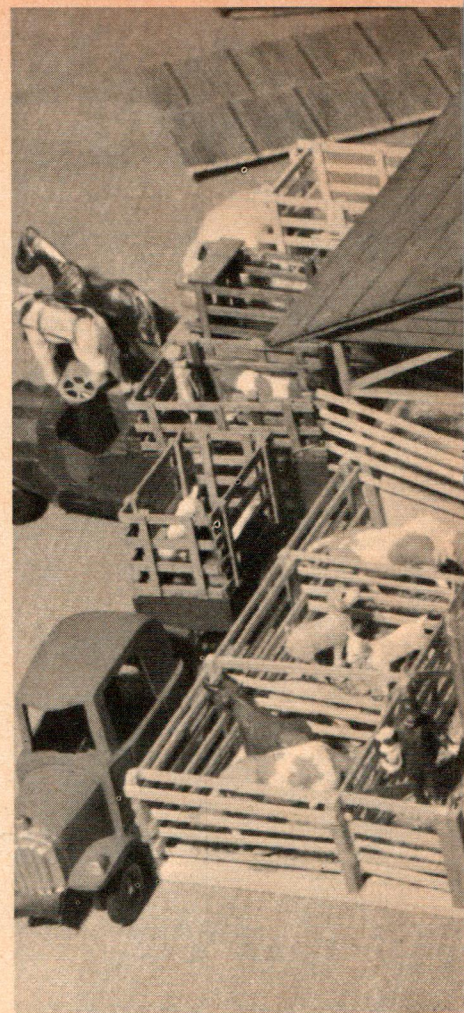


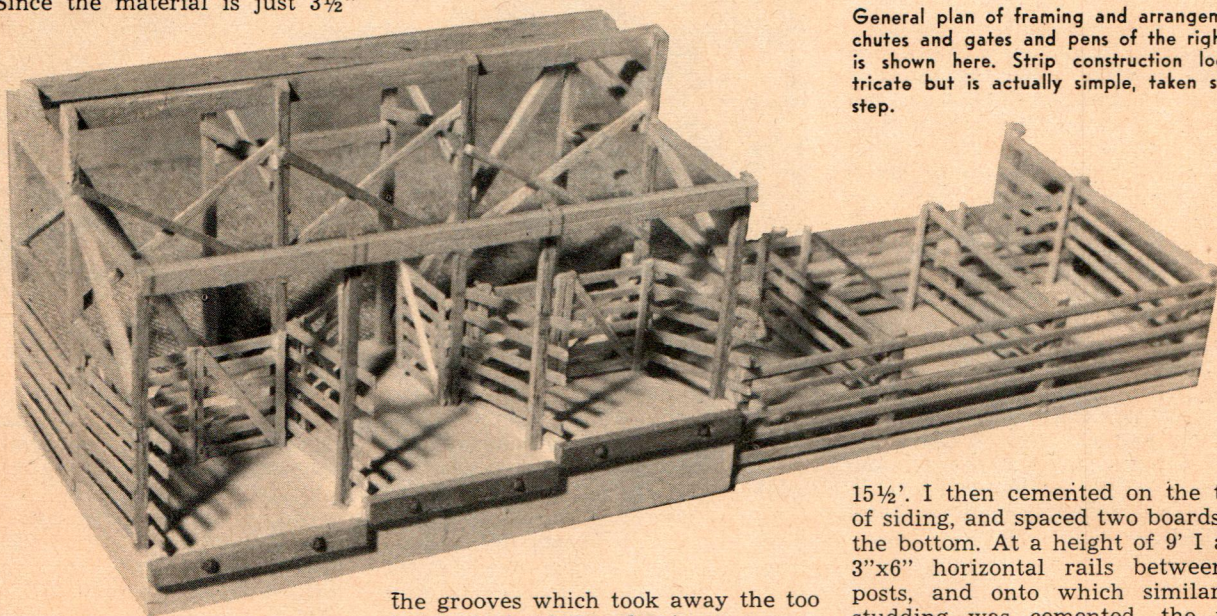
FIG. 4 - TOP VIEW 1/2 HO SCALE

terior that there is a nook at the one end ready to receive the strip—mine fit snugly enough that I had no need of fastening them in place. The central portion of the roof comes next. I used two strips of 1/8" wood, each 7' wide and extending the length of the inside of the barn; I beveled and joined them together at the angle of the gable ends, then cemented on Northeastern's corrugated roofing, which is .040 thick and has .040 spacings. Since the material is just 3 1/2"

applying a hot iron, to keep it straight I added a piece of 1/16" sheetwood. The distortion was very slight as may be seen in the photographs, the corrective measures having been applied later. I went down the center of these roof parts with a knife making a simulated division of corrugated sheets. I then painted the roof with aluminum paint and when dry went over it with a rusty wash (green and red mixed) and letting it run down



General plan of framing and arrangement of chutes and gates and pens of the right wing is shown here. Strip construction looks intricate but is actually simple, taken step by step.



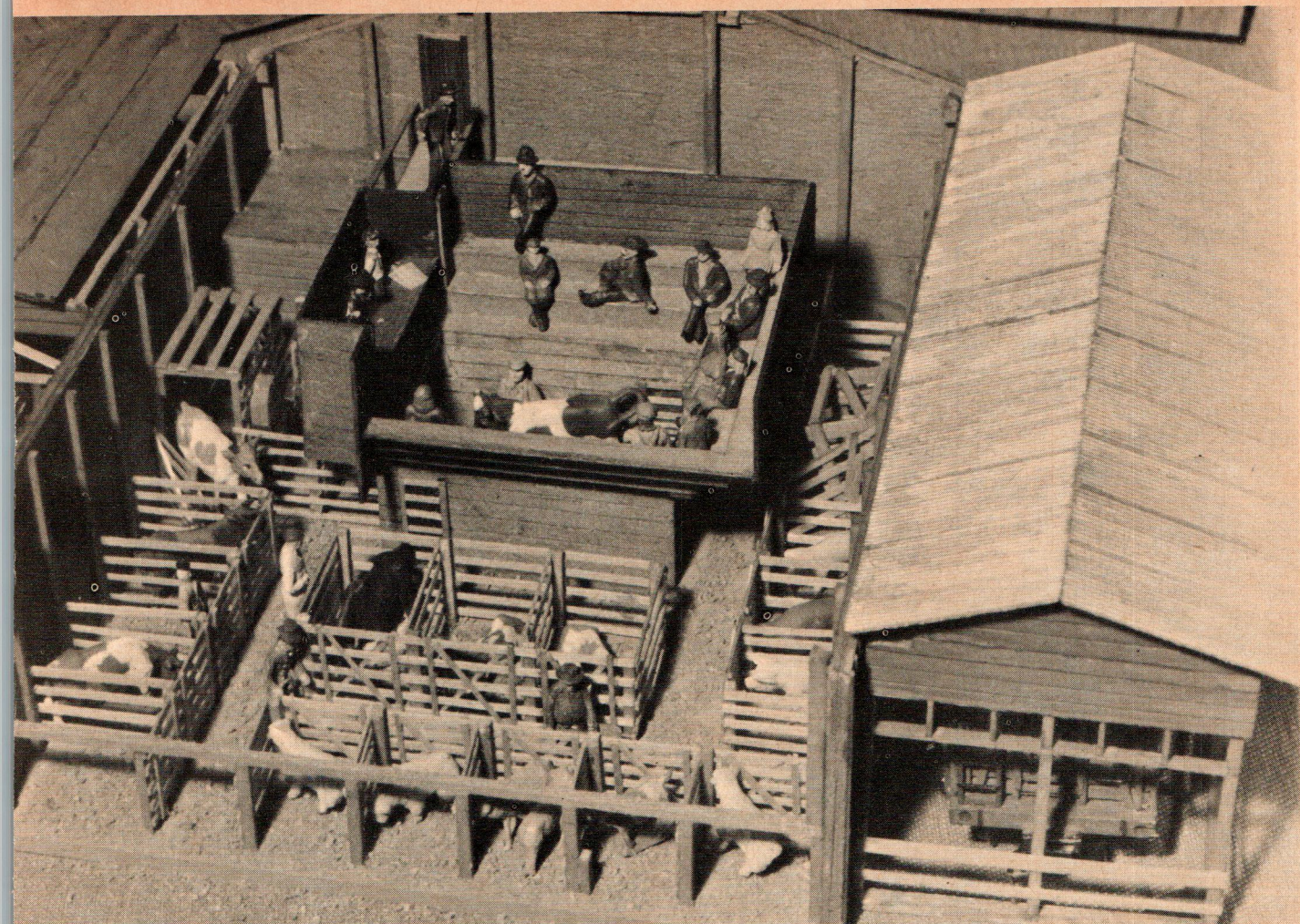
wide it will require two widths plus about 1/8" in the center, each side of the roof being 9 1/2'x52 1/2'.

For the lower roof sides I used 1/8" balsa, 11 1/2' wide and the length of the inside . . . to this I cemented corrugated roofing 15'x52 1/2'. This however had a slight tendency to warp and although I could straighten it by

the grooves which took away the too bright look of the aluminum.

Now to the car shed. This is a lean-to but with a gable roof. It prefers leaning on the barn roof for support, but being framed at one end and one side it will stand alone. I laid out my sketch on cardboard as I did for fences previously, laid a 9"x9" (3/32" sq.) balsa sill 45' long at the bottom, then added 6"x6" balsa uprights 14 3/4' long, making a total height of

15 1/2'. I then cemented on the top 4' of siding, and spaced two boards near the bottom. At a height of 9' I added 3"x6" horizontal rails between the posts, and onto which similar size studding was cemented, the upper ends of which were cemented to the inner side of the siding. This same treatment was followed for the end. For the roof, two pieces of 1/16" lumber were cut, each 7'x44', beveled and joined at the roof angle shown. Then corrugated roofing was cemented to this, the outside strip 9 1/2'x47 1/2', and the inside one which rests on the barn roof, 8 1/2'x47 1/2'. At the



View with roof off shows buyers and spectators listening as auctioneer spels off a sing-song lingo that only the initiated understand. Cow is coming off the scales after being weighed.

end, in the siding, a cut will have to be inletted so the shed may snuggle up close to the barn. When all else was finished I added rafter ends, 3' apart, along the underside of the roof edge. All except the siding, which is red, was given a raw sienna wash.

The right side, consisting of loading chutes and pens is also built as a separate unit. The base is 15'x49', of 1/16" sheetwood, painted to simulate concrete. It is one foot shorter than the barn and is set flush with the rear, leaving the extra foot of free space at the foot of the stairs.

The first thing is to build the concrete ramps. I made these of various thicknesses of wood cemented together, then carved and sanded to shape. Each is 10' long, the first one 8½' wide and 2' in height at outer edge. The middle one is 8' wide and 2¾' high, and the third one is 8½' wide and 3½' high. When set in place on the base they will of course be six inches higher. Cement in place, then face with a single piece of 1/32" wood and paint to simulate concrete. At the end of each ramp is a buffer block of 6"x12" timber. Here's a good place to use those Kemtron nut and

bolt sets if you have some.

The base being settled, let's get on with the framing. Study the photograph for the general plan. All framing is of wood and all upright members are 6"x6" posts. Beginning with the front line of uprights which are set back 12" from the edge of ramps, set four posts in line to a height of 13½' from lower edge of base. Either cement to top surface of ramp or drill holes with a #50 drill (.070), round the base of posts and set in holes. The second or center row of four are set to a height of 16½' and the rear row 14'. Any form of bracing may be used to connect and strengthen these and by the time the fencing is added and the top held together with 6"x12" timbers it will be plenty rigid. Gates and fencing here, as elsewhere is a uniform 5' in height. I cut one of the sets of gates apart and cemented it in an open position. When framing and fencing is completed, spread sawdust as in the barn pens.

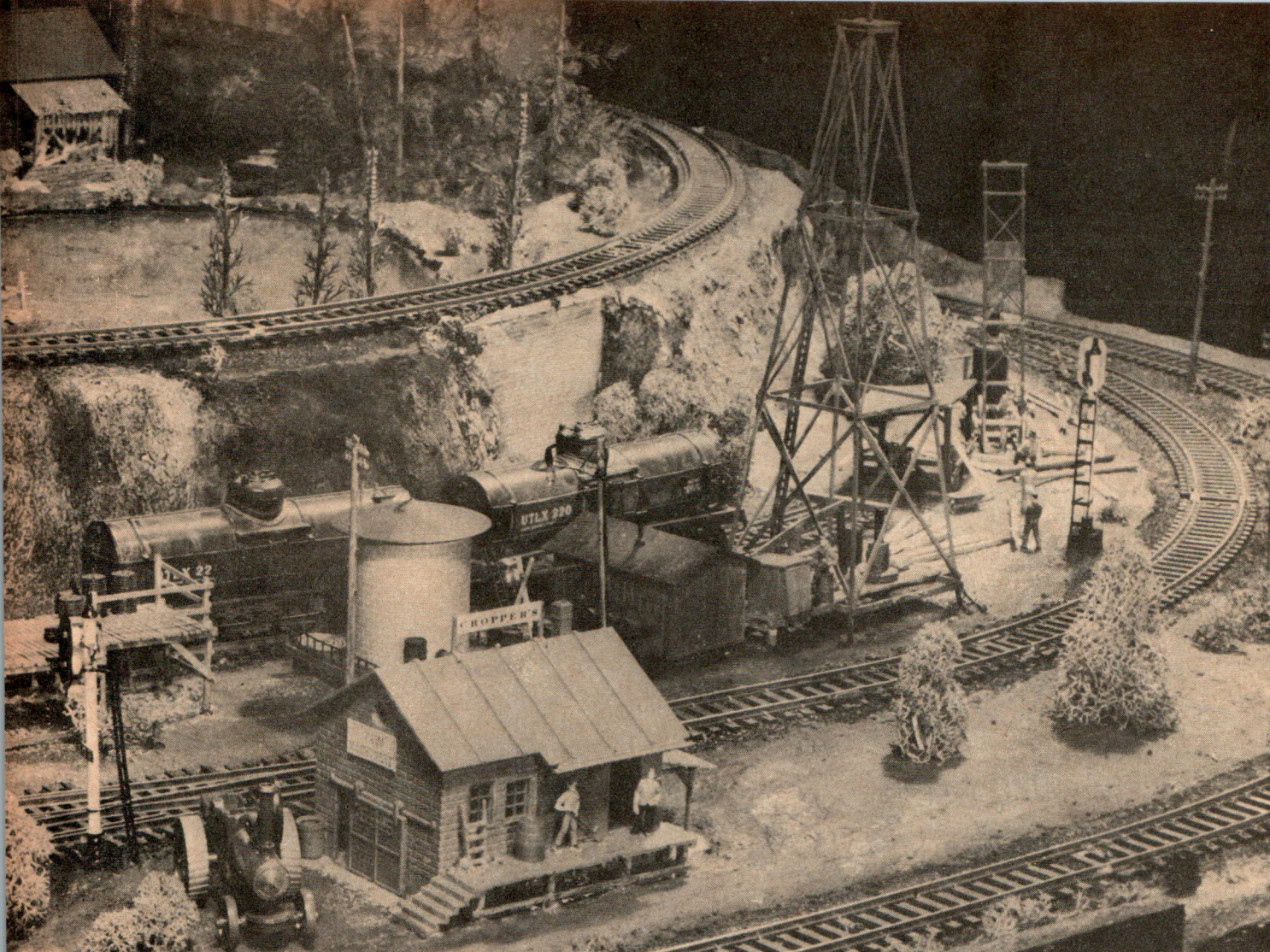
Siding covers the top 3½' of each end of the shed, but I have left it off Figure 1 to show my Rube Goldbergian method of easing the structure up against the barn and around the eave. The roof of the shed is permanent so I merely cemented two sheets of 1/32" wood stock onto the framework, the outside strip 11'x27½' and the inner one 6¾'x27½',

then adding a few pieces of wood to the underside for bracing. This roof has simulated roll roofing laid, so I gave it a thick coating of gray paint then with a fine pointed brush drew in darker division lines. As with the car shed I added rafter ends to the underside of the roof edge. The shed may now be shoved up against the barn after a bit of red paint on the siding and a wash of raw sienna over the rest of it.

The era in which the barn exists is largely determined by the trucks which are parked outside. I picked up a couple of Volkswagen Pick-ups for 35c each at a local dime store, and after removing the canopies I built a stake body of stripwood on each. I came upon some sets of plastic old timers even cheaper and by remodeling and building stake bodies I had some early century stuff. For one old coupe I built a two wheel trailer that would accomodate a couple of cows. Those Aristo-Craft wagons are ideal for the purpose. I found all this rather an interesting pastime.

Livestock in quantity may be purchased from Selley and painted. AHM offers a set of about forty pieces in plastic for 50c. And for something really showy and already painted, try Mertens plastic figures.

Hey! Hey! This is Stock Auction Day!

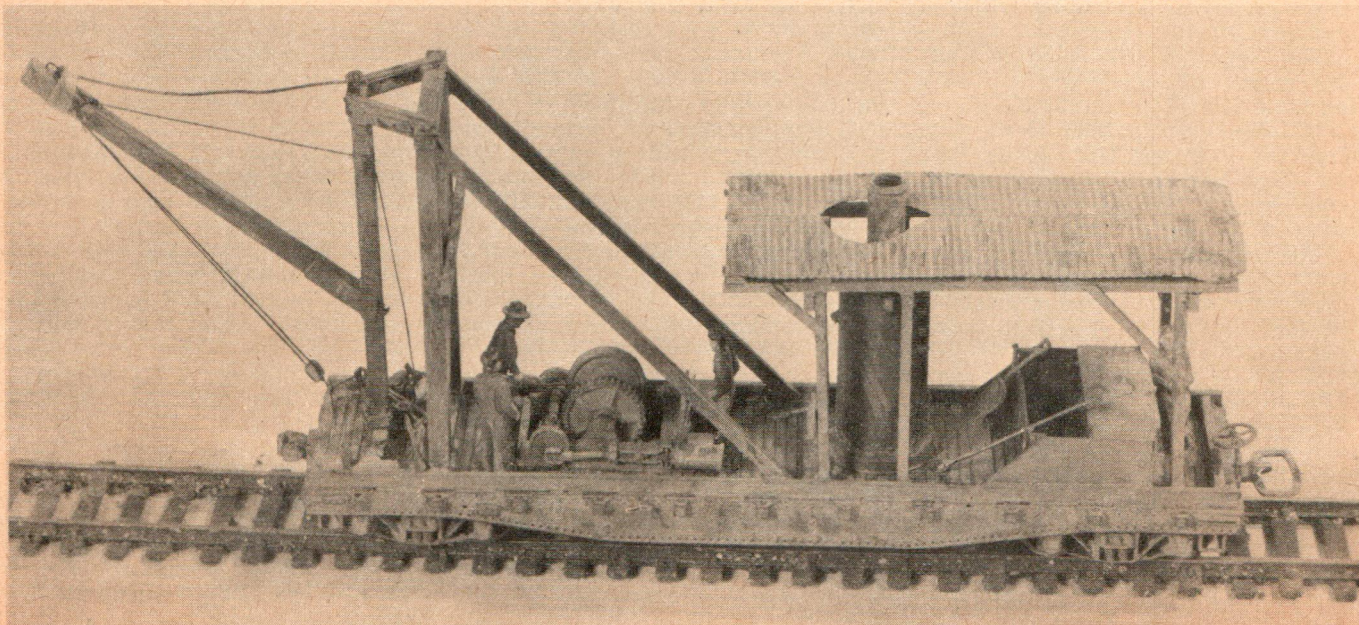


BOB HUDSON'S BETHEL CREEK RAILROAD is shown in a scene at Cropper's Depot. Bob is a strong believer in using commercial parts and structures wherever possible, adapting them to his special need.

Photo By William Burke

Photos From Our Readers . . .

Neil Vuyk, c/o Washington Park Nurseries, Box 27, Plainfield, N. J., built this Surrey-Parker Log Loader for his HO Turtle Creek Conn. RR. Neil modified the model considerably, using a Mantua metal flat, Rollins House donkey boiler, steam winch, and tools, plus Weston figures. Also corrugated siding, scale lumber, and Model Shipways blocks. Trucks are Silver Streak arch bar; couplers mix 'n' un-match!



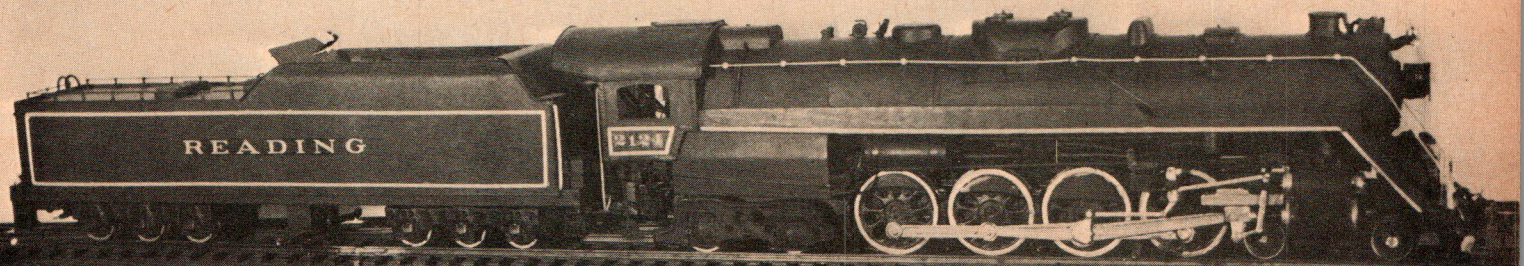
Boomer Trail

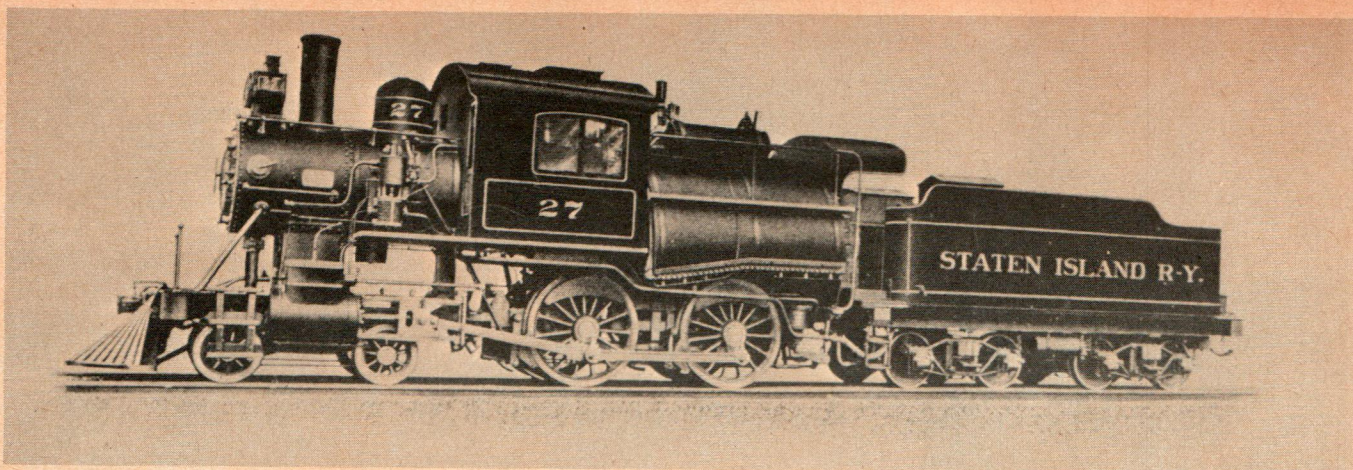
We invite all readers to submit photos of their layouts for publication in the Boomer Trail. Photos must show good modeling and originality. We pay \$5 or more for all non-commercial photos used here. Send photos size 4x5 or larger to the Editor, Railroad Model Craftsman, 6 East Main St., Ramsey, N. J.

Joe Dorazio's locos are noted for their smooth running qualities and clean workmanship often devoid of super detailing. This giant Reading T-1 weighs 20½ pounds, slows to a bare crawl.



Tinplate equipment, given the full scenic treatment, isn't too far removed from scale as in this photo by Allen H. Fries, 1861 North 1st St., Phoenix, Arizona, showing his White Garden Federal Lines S gauge pike. Most of the roster consists of Flyer equipment but there are also 4 Rex locos and 7 home built cars. Conversion to lay-your-own or Gargraves trackage would convert the line to near scale proportions. Note Flyer knuckle couplers which S gaugers consider less obtrusive than popular HO horn couplers.

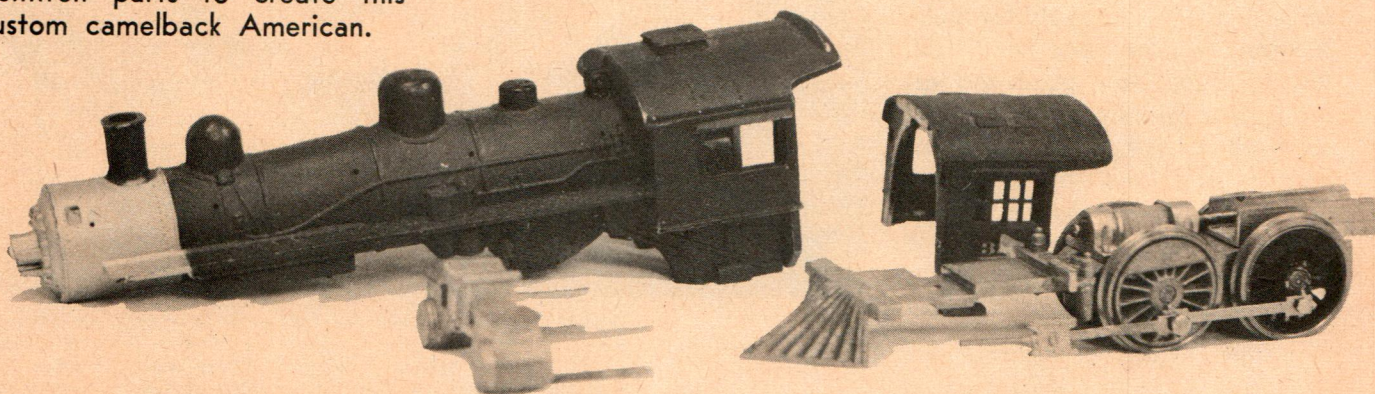




This photo of an early American Locomotive Works 4-4-0 Camelback, built for the Staten Island Ry., provided Ned Norman with the information and drive needed to build an operating HO model.

From General To Camelback

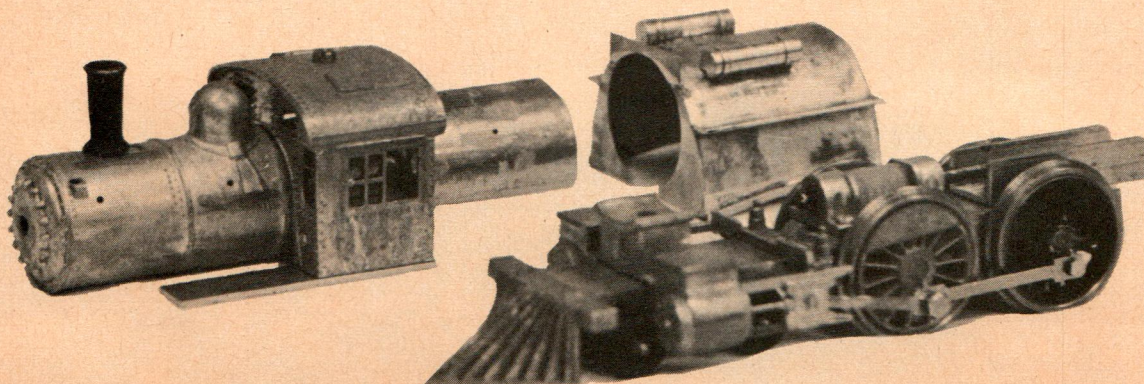
Ned Norman took a Tyco General plus Varney, MDC, and Kemtron parts to create this custom camelback American.

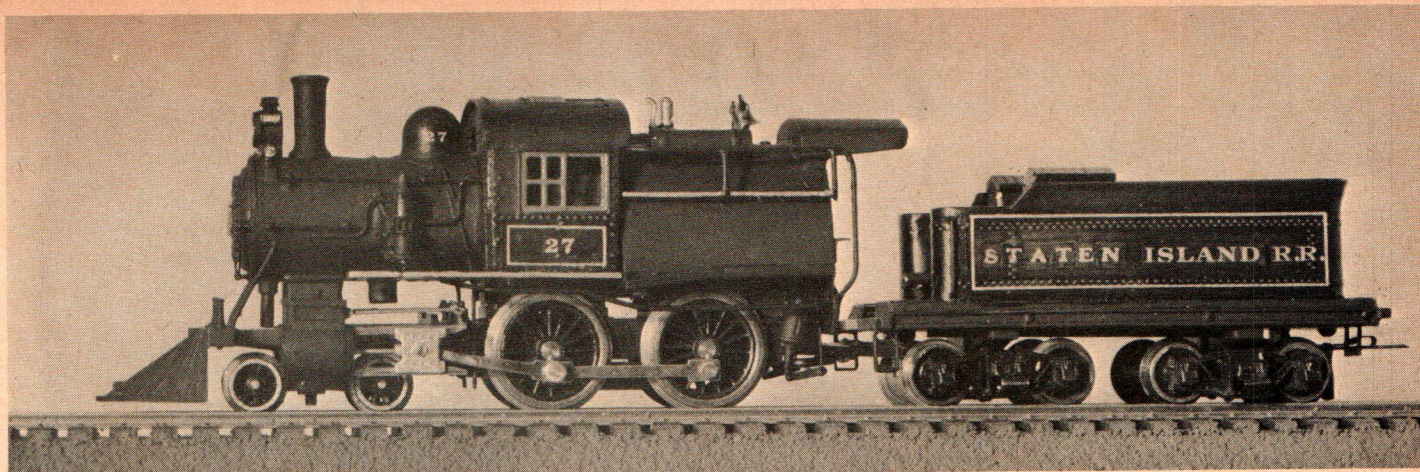


The parts that went into the camelback are a boiler from a Varney Old Lady, MDC cylinder assembly, and an extra cab from a Mantua Pacific. Chassis is from a Tyco (Mantua) old time General loco.

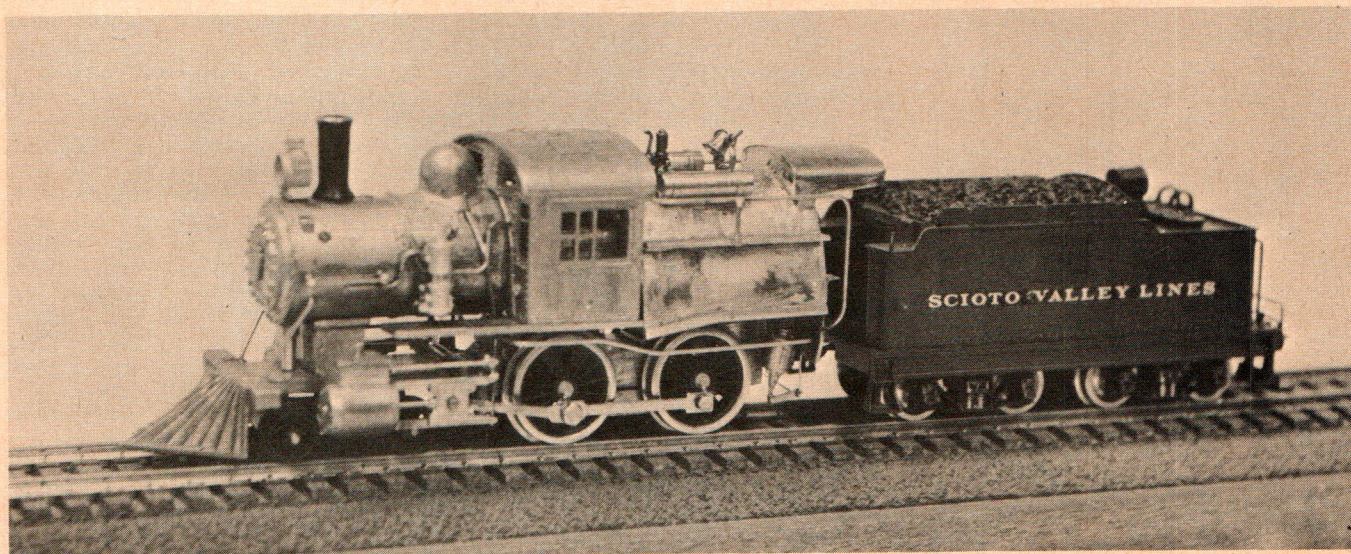
by Jack Dean

Old Lady boiler has been trimmed down and cab moved forward. New firebox Wootten has been formed of brass, and MDC cylinder block fitted to chassis. Crosskitter must never forsake real practice.





The author's completed model with home made tender utilizing Kemtron wrap-around and code 100 rail used as channel.



Completed locomotive with all super detail parts in place, mostly from Kemtron. Ned tried using tender shown, which proved somewhat large, destroying small appearance of the prototype.

He scratch built the brass Wootten firebox, turned the air tanks on a lathe (you can also buy them), and formed a tender from wood, using a Kemtron wrap-around, when the tender he originally wanted to use proved too big. Extra parts are mostly from Kemtron.

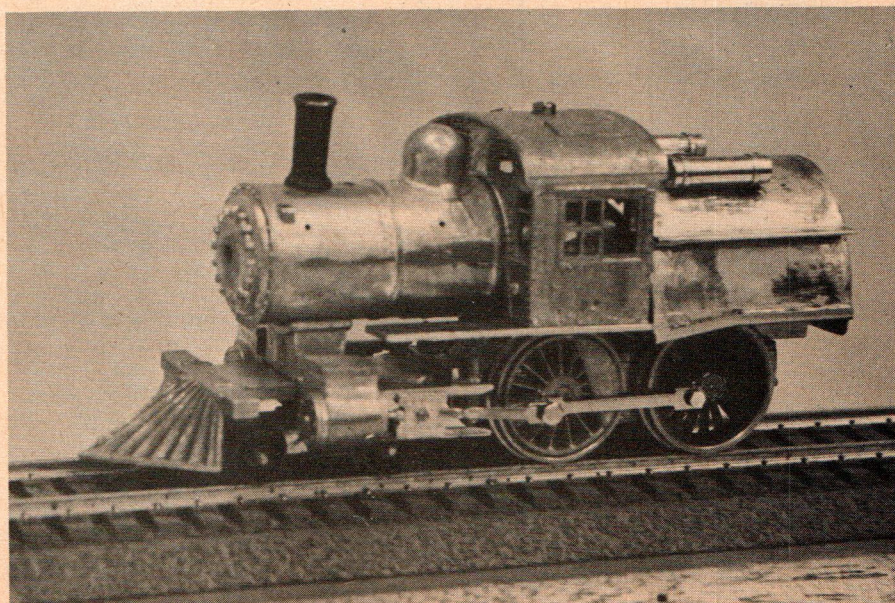
With considerable filing, grinding, and experience from years of this sort of thing, Ned came up with a reasonably accurate replica of the prototype. Certainly it retains virtually all of the diminutive charm of the early American Loco Works engine built for the Staten Island.

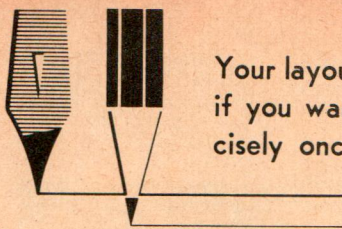
The boiler is weighted and the engine is a good hauler with its tender drive.

Through the years, few camelbacks have been offered to modelers in any of the gauges. HOers have been most fortunate with models for the Long Island 2-8-0C Dickson Hog from several suppliers, the famed Mantua Reading 0-4-0C Goat, the Akane Reading 2-8-0C in brass, plus several models of the Jersey Central 4-6-0C. None are presently believed in production though some dealers may still have limited stocks on hand.

RAILROAD MODEL CRAFTSMAN

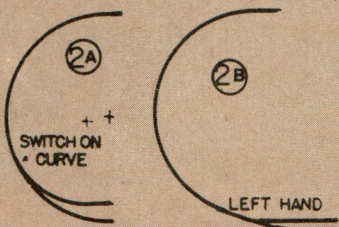
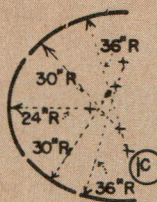
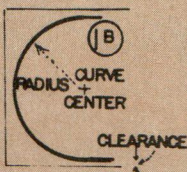
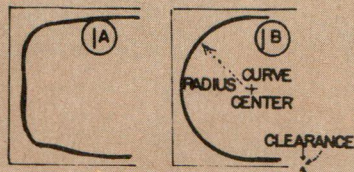
Here engine has been assembled except for extra detail parts. Air tanks were turned from brass but can be bought. Few camel-back locos have been offered modelers over years in any gauge.





Your layout drawing must be drawn to exact scale if you want to know that everything will fit precisely once you start the actual construction.

designing your own railroad



WHEREAS some fellows will look and look for a layout plan until they find one just the size needed, others go ahead and design pikes based on their own ideas, no matter where acquired. First inspirations may come from some published layout enlarged, reduced, spread out, inverted, mirrored, modified, or otherwise modified. But before construction begins it is a good idea to make a drawing of your proposed track design to scale. A popular scale for such drawings is 1" to the foot, so that the plan is 1/12th actual size. An even better scale, if your layout is not to be too big, is 1½" to the foot so that the plan is ⅓" actual size: every ⅓" on the plan then represents one actual inch on the finished pike. If the pike is quite large, this may be halved to ¾" to the foot, where every 1/16" represents one actual inch.

The plan should be drawn on a drawing board with T-square, triangle, ruler, and compass, for accuracy. My preference is to incorporate scenery ideas and basic 2-rail wiring on the one plan, but other modelers prefer to make a track plan tracing and have blue-line prints made from it. On one they will mark track wiring; on another switch wiring; on another they'll mark supporting framing; on another scenery.

A rough sketch of a layout is o.k. while you are sorting out your ideas. A curve at the end of a narrow platform might first look as per 1-A, whereas when accurately drawn it would look as per 1-B. Adequate clearance should be allowed on all sides so that trains do not run too close to the wall or to the edge of the table. In HO gauge, this is 2" from the center of the track, though 3" is even better to the table edge and will give you a narrow shelf for very minor repairs besides a margin for safety.

You may have read how real railroad curves are "spiraled" and your model railroad curves should, too. No doubt trains look better going around curves that start gently and gradually increase in sharpness. But there is seldom room for this luxury. In 1-C I show a model railroad way of spiraling a curve, simply making the radius decrease at several points on the curve somewhat as marked, but of course suitable to your conditions.

ius that your cars will take. If you are using curved roadbed, these places will allow you to use up odds and ends of curve. If you are using flexible track, you can curve it by eye and not worry.

In sketching a yard it is common to see squiggles similar to 3-D. Some of the layouts sent to the LLD for criticism have several such yards located all over a relatively small pike, impossible to fit in. Such a yard with #4 switches would look more like 3-E, which again omits an exact drawing of one curve which can be any convenient radius. Since the body tracks are shorter than 3D, -naturally such a yard will hold less cars than 3-D might lead you to believe.

Models rails who use Tru-Scale roadbed and Ready-Track will sometimes butt the paddle shaped switch blocks end to end, without cutting them down to size, as in 4-A. This gives a rather snaky effect to a train crossing from one side to the other. It is better to cut the switchblocks down with a razor and/or jewelers-saw and get a smoother route as in 4-B. 4-A is possible IF either or both of the tracks extend as shown, dashed toward the left. Of course each single switch would have a mate and become a crossover if this is the situation.

Reverse curves as in 5-A are great for causing derailments unless you are using truck-mounted couplers or are running only single units, as trolleys or interurbans. It is better to do as in 5-B, insert a length of straight track tangent to both curves. Ideally this should be as long as your longest car.

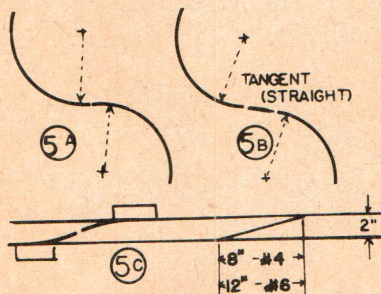
If two sectional track switches are placed end to end as in 5-C, with track on 2" centers, you get one segment of 18" radius curve reversing into another such segment. With truck mounted couplers you'll have little trouble, but it is better to re-space sectional tracks running parallel to 3" centers, so you can insert a length of straight track (3" long) between these two switches and avoid a reverse curve.

The use of other-than-sectional track switches with numbered frogs will give a situation as in the right side of 5-C. The center line of the tracks as drawn looks to be at an angle, 14° for #4, 12½° for #4 Custom-Line, and 9½° for #6. Of course the track is curved between point and frog of each switch but in a crossover in straight between the frogs, making for better operation of big engines and long trains. You cannot see the point where the center line of the straight part of the switch and that of the branch part intersect, but it is a convenience for accurate drawing.

Running tracks parallel to the edges of a layout is sometimes condemned as unrealistic, 6-A. However there often isn't much else you can do on a small table. The back track

will usually be along a wall and can in any event be hidden by a back-scene, a tunnel, or scenery. Running the front track along the edge is a matter of convenience to bring switches within reach. If you have to have your tracks parallel to the table sides, then consider distracting the eyes from them by running streets at an angle as in 6-A.

6-B shows some ways of breaking up the parallelism of tracks just mentioned—if you have space. The rear track may be ducked forward around a mountain or body of water. The front track may be angled and either side (or both) utilized for yard tracks



It is all too easy to draw a layout with switches on curves as in 2-A, but it is less easy to build and operate such curved switches. I've had them and know they will work, but there is seldom a real need for them even though they are now commercially available from several sources. A standard switch located on a length of straight introduced near the end of the curve will usually accomplish the same thing with less hazard as in 2-B.

In drawing a layout, it is too easy to snuggle all yard switches together as in 3-A. Really such a ladder track would look as in 3-B where both rails are drawn. The frogs and points would overlap, something found very seldom in real railroad—ing outside of trolley barn ladders and other places where space is at a premium.

Such a situation could be better handled as in 3-C, with a compound ladder track. This is shown swinging off from the lead at twice the angle of the switches used—28°, but the yard body tracks could then be curved as desired. Note that certain curves are shown only lightly dotted. These can be of any convenient radius which may be parallel to the edge as sketched. The triangular space at lower left corner might be used for a somewhat larger depot than usual, with curved driveway, parking area, monument, flagpole, etc.

It is well to avoid having a bridge crossover a nest of switches as the yard ladder in 7-A, simply because it will interfere with sight and maintenance of these switches. If you must have a bridge there, try to give a little more than the usual 3" clearance from track to track, and even better have the bridge "easily" removable by sliding back the four rail joiners at its ends. Give some

thought to reworking the whole layout plan, keeping the same general pattern, but INVERTING it in whole or part so that the crossing goes below the yard, in a tunnel. This will make your entire yard easily reachable.

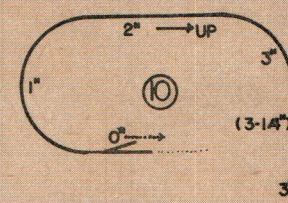
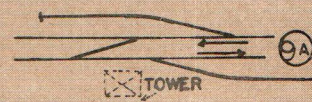
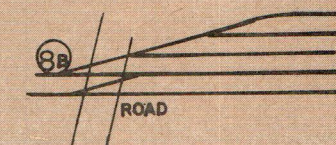
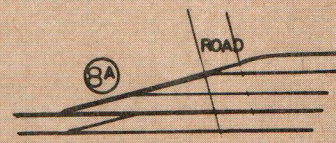
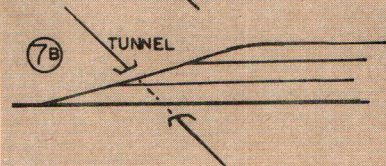
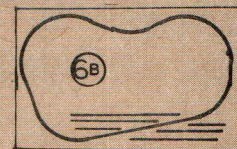
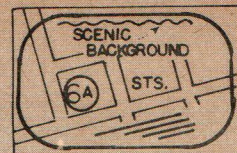
It is a good idea to have a span cross near the ends of the yard body tracks to disguise the fact that they are so short, to make it seem that they go farther than they do. If you cannot make this a railroad bridge as in 7-C, how about a road bridge?

Generally roads and streets will cross your model railroad where there is plain single or double track. If they have to cross where there are switches try to make the crossing so that no valuable track length is spoiled for car storage. 8-A is bad in this respect, 8-B is good, though few real railroads would deliberately run a road crossing through such a nest of switches. They have plenty of track length. If you have several highway crossings, make some of them at grade, some of them up over the tracks, some of them ducking under.

You should also try to have as many of your switches as possible (if on double track) trailing point rather than facing point. If you'll study the stretch of keep-to-the-right double track in 9-A you'll see that both sidings face the direction of traffic indicated by arrows. Not only that but the crossover does too. Real railroads would usually require a tower at a facing point (left-hand) crossover as here. In 9-B the arrangement has been changed so that the crossover (right-hand now) and sidings are ALL trailing point so that there is little danger of a train being diverted at speed into an unexpectedly turned switch.

You have to beware of grades, too. Not that you cannot have grades of any steepness suitable for the engines and cars you'll run. But you must watch where and how these grades begin. Note that in 10 the grade is showing beginning at 0" right in the middle of the switch. It should be moved to the right (either the switch or beginning of the grade) so that the track through the switch is at the same slope—or is level. As this track curls around you'll note that its highest elevation, to cross another track at 3", is right at the end of a curve. This is bad since it may drop steam loco lead trucks off the track. Continue the grade a little higher, past the curve, to 3 1/4", then if you want, slope down again to the 3".

One more thing which I have not shown specifically here but which I have shown in all my layout designs over the years is this: keep all switches accessible. What it very often boils down to is a whole lot of switches along the front of a layout, say within 1 or 2 feet of the table edge, and NONE around the back and the rest of the pike—unless they are reachable from elsewhere.





Lionel Standard Gauge trains in the Carstens Collection include many fine items which the new collector can still acquire at low cost. Lionel discontinued production about 1940, 1/4 century ago.

The New Collector

The beginning collector can still find hundreds of sleepers at train meets available at rock bottom prices; pieces which should be bringing far more than they do.

SO YOU'VE become a train collector and are buying up everything in sight and suddenly you've discovered that you have problems! Sit back and relax, and let's take a look at what has happened to the collecting hobby during the past few years. For one, it has grown, which means that there are many more collectors seeking out certain items than there were five or ten years ago. Increased demand for certain of the more highly sought after items inevitably means that you'll be paying more

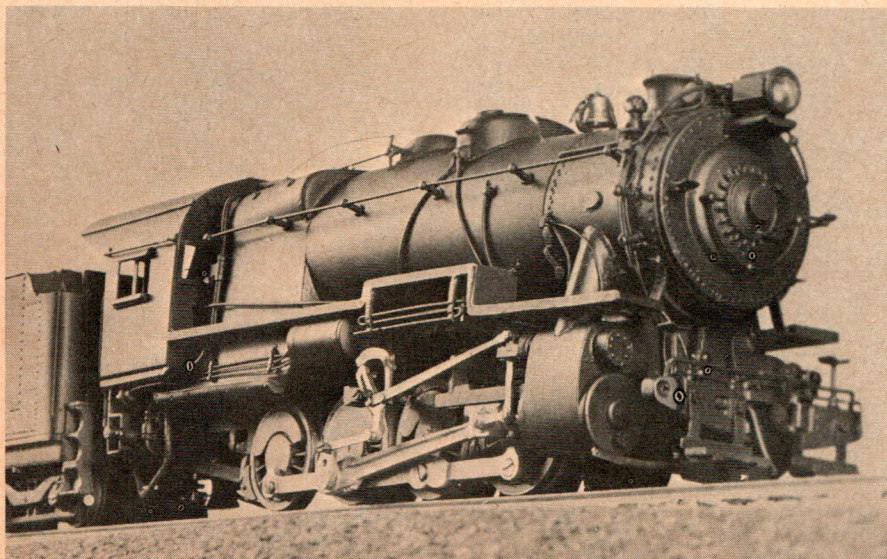
for these items yourself—if you want them that badly.

One easy way to get around the high cost of a relative handful of collectors items is to specialize in lower cost pieces which either are plentiful or which are sleepers.

Most collectors quickly run into situations in which they are offered train sets privately from non-collectors at prices which are so high as to be utterly ridiculous. One example is a letter recently received from one woman who had a 1908 Bing set which from her description was probably worth somewhere around \$25-\$50, depending on the exact model and condition, which she didn't specify. Some scale modelers had advised her the set was worth \$300. Any collector who now offers her the going market value will automatically be considered a cheat and a thief by this woman. Ultimately, any set is worth only what a person is willing to offer, in light of his own knowledge of the hobby and in light of his own interest in the specific piece or set.

There are still many sleepers around and they can be found at any train collectors' meet. Most collectors are suddenly beginning to realize that a revolution has hit train collecting. Trading pits are loaded with so-called modern trains, or trains manufactured since 1946. Many of these trains can no longer be considered modern. In 1966, trains made around 1946 are twenty years old. Back in 1946, twenty year old trains were of the vintage 1926, right smack

Scale trains by scale model manufacturers or custom builders are beginning to catch the eye of collectors, but only when they have been built and finished authentically and to high museum standards.



in the classic era. Many of our younger collectors collect nothing but trains equipped with knuckle couplers. They won't touch anything with latch or box automatic couplers.

Found here and there among these vast amounts of modern trains, which daily become more commonplace at train meets, are a few older pieces mostly O and Standard Gauge, which haven't as yet caught the fancy of collectors because they were too common just a few short years ago. These sleepers should be the most sought after items among collectors today because there aren't as many of these pieces around as most collectors would believe, especially where these pieces have not been made since 1939.

In Lionel Standard Gauge electric type locomotives, we'd go out and get any which were not now in our collection, especially the lower priced so-called common garden variety which are no longer common garden: 8, 10, 318, 380, and 402. The 402 will outpull the big 381 Olympian any day and has always been overshadowed by its more expensive 408 sister. The 402 is coming up fast but is still relatively easy to come by.

Among the Lionel steamers, you'll still find good values in the 384 and 390E, though most of the other Lionel Standard Gauge steamers are somewhat harder to come by.

Many of the older locomotives are also sleepers. Electric types such as the 33, 38, 42, and 50, often go begging because no aura of glamour has been spread over these little charmers, yet the 42 is possibly the most attractive electric locomotive ever produced by Lionel and is a delight to watch with its two pair of side rods spinning around.

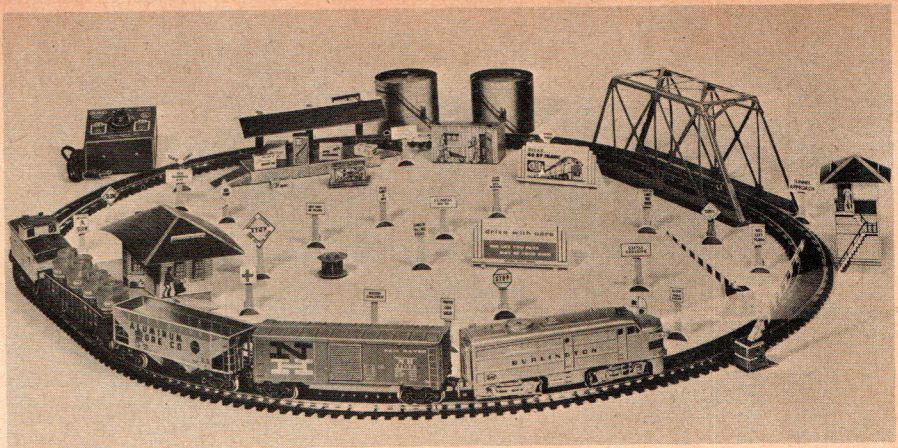
Many Standard Gauge cars are also sleepers, notably the smaller 100 and 500 series. Some specific numbers are hard to find in really excellent condition but the new collector can pick up individual cars at rock bottom prices. And should.

Most O gauge pieces with the exception of a few highly touted items such as the Ives-Lionel 1694 and the Lionel scale loco and car series, are still low or moderately priced, though such items as the Hiawatha and 260-263 are starting to climb. Most cars are still easily obtainable through collector sources at prices lower than the average collector can pick up privately.

Few collectors have gone into such lines as Marx or Gilbert S. The collector who wants to specialize in either or both of these lines can quickly fill up a basement full of fine equipment at very low prices, because there is no competition.

Among the modern trains, made since 1946, or possibly somewhat earlier if you want to include all die cast equipment, there are many good buys. Endless variations await the collector who delights in such things: variations of number, lettering, color,

RAILROAD MODEL CRAFTSMAN



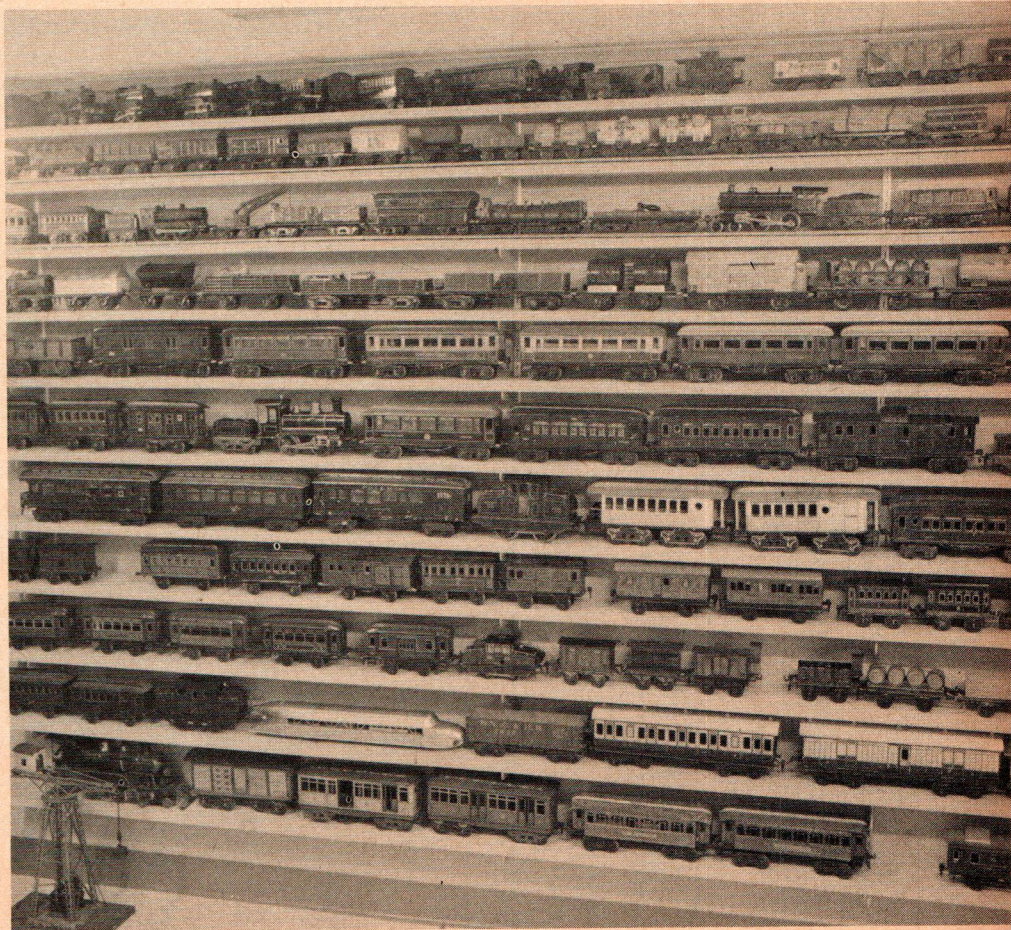
Collectors who beat the bushes today are most likely to turn up modern O gauge, manufactured since 1946. Most such trains can be had at little or no expense, making them good collecting material.

trucks, and couplers. Few collectors have gone into such semi-scale lines as Thomas or AMT-Kusan-Auburn. Another virgin field for the real collector, especially those with space problems, is HO. Locomotives and cars from such firms as A. C. Gilbert, Penn Line, early Mantua and Athearn, Maerklin, and others, are sure to become collectors pieces.

The nature of toy train collecting is such that pieces are often bought and sold, but many collectors prefer

to barter in the old tradition. In fact, many old time collectors won't sell better pieces at any price but will only trade them for pieces they need and want. For these old line collectors, wheeling and dealing destroys the fun inherent in the collecting of old trains. The wheeler-dealer also faces the possibility of an eventual day of reckoning with the Internal Revenue Service, which make it a good idea to keep careful track of all buying and selling.

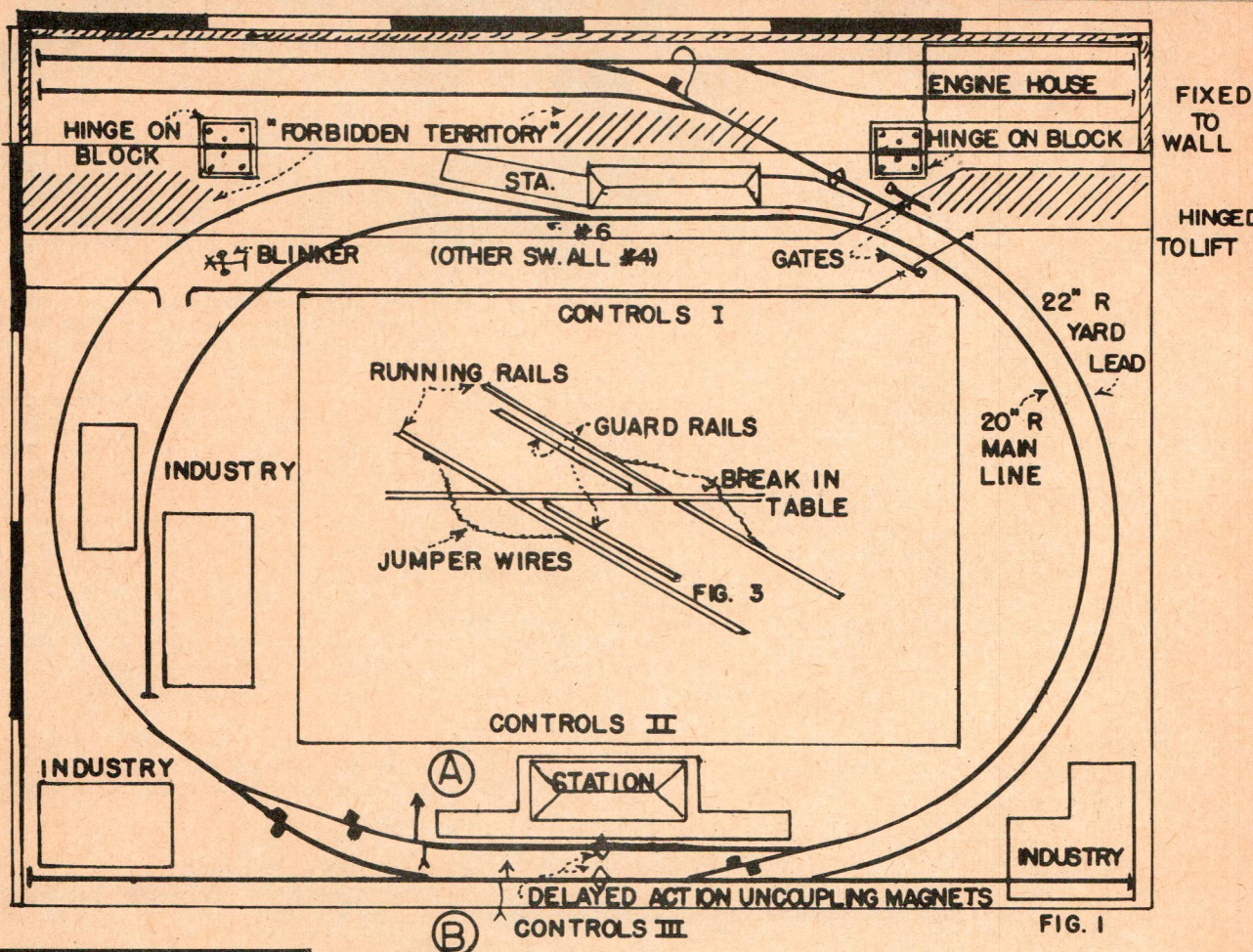
A solid wall of European trains in O, 1, and 2 gauge, in the Carstens Collection. Included are pieces of Hornby, Bassett-Lowke, Bing, and Carette, but most items are Maerklin, dating 1900-1950.



RHODE ISLAND R.R.

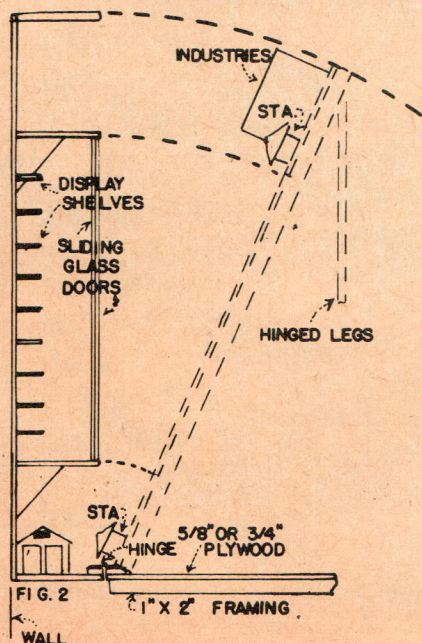
Where there is no room for a pike, build one that folds up against a wall. This 4x6 ft. system has generous 20-22 inch radius curves.

by the layout doctor



HO TRACK PARTS REQUIRED

1/2 circle	22" radius
1-1/4 circle	20" radius
Straight	14 ft.
#6R switch	1
#4R switch	4
#4L switch	4



IF YOU are a model railroader without a layout, you have plenty of company. I'm sure you intend to build a layout some day: when you finish college or your military service, after you get married, or have the time, space, or money. My feeling is that a model rail without a layout is akin to a fish without water, or a camera bug without film.

Now I realize that there are in this model railroading hobby a lot of guys who do nothing but collect trains: scale or tinplate. These birds buy trains and put them on a shelf, never letting a wheel turn lest the pieces get scratched or dented. Poor misguided souls. I appreciate fine equipment as much as the next modeler or collector, whether the item in question be a superb superdetailed all brass import or a rare old Ives 3245 long cab orange electric loco. The only thing is, locomotives are not the same thing as Wedgwood. Locomotive models were made to run and give pleasure. Scale modelers and collectors who deprive themselves of the thrill of running their new or old equipment are missing half the fun of model railroading.

The layout here is for modeler's lacking the space for a permanent layout, even a small 4x6 footer. The Rhode Island Railroad (it's so small) is designed to hinge onto the wall. As shown, its designed for HO but it could be modified easily enough for any scale or gauge, even that big old giant Standard Gauge (2-1/8" Gauge). I'd recommend use of Gar-graves track for either O or Standard Gauge, in this situation.

Naturally, scenery on such a fold-up railroad has to be fastened down, so that when the table is closed for storage, the buildings and other accessories would not fall off. To store the rolling stock, we've provided two sidings, one of which backs into a 2-stall enginehouse.

How do you get the track across the break in the table where the fixed and folding parts of the table meet? To begin with, it is helpful if the crossing can be made at an angle (see fig. 2). The track should first be laid right across the break, soldered to spikes, screws, or brads on the outside, then sawed apart with a razor saw or separating disc, right in line with the break. Naturally this would

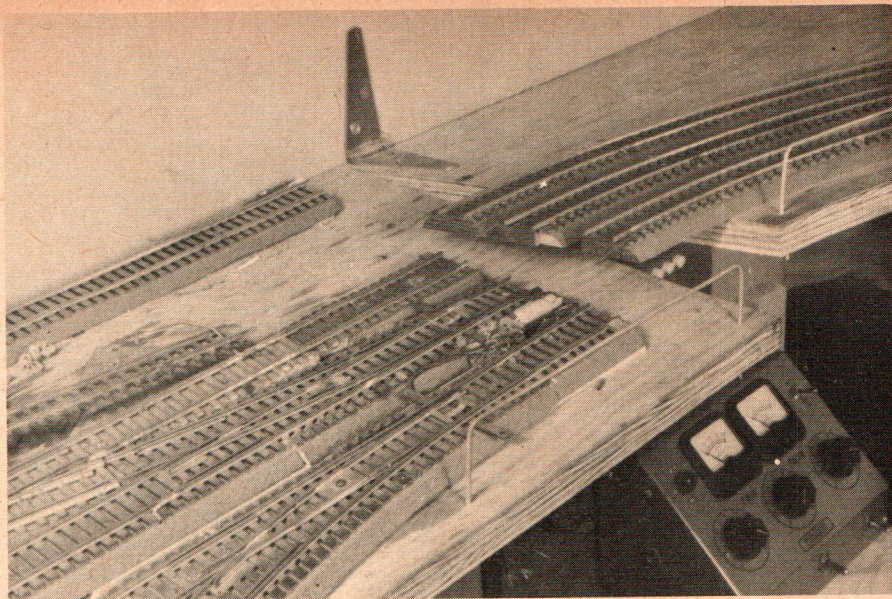
not be advisable in the middle of a switch. Guard rails should be located base-to-base with the running rails (as shown) so that the break in the opposite rail does not cause a derailment. The sharp tip of the rail-head on each side of the break should be filed a little so that it does not snag flanges. If you desire to carry electricity across, wire contacts could be made, but it is much simpler to use jumpers of flexible wire (such as motor hook-up wire), soldered to rails on each side of the break as shown. It is good idea to have as few such breaks crossing points as possible since each is a potential source of trouble.

I would suggest dividing the layout up into two control sections, A the yard and lead; and B the main line. I show insulated rail joiners (black blocks) with this in mind, and have located the track feeders accordingly for either regular all-rail frog switches or, with minor changes in track location, for insulated frog switches.

If controls were to be inside the layout, as planned, then there could be two banks of switch push-buttons at Control Locations I and II, just fastened to the inner edge of the table. Actual speed and direction control of trains could be similarly arranged with two flattish power packs, with controls fastened to the underside of the table.

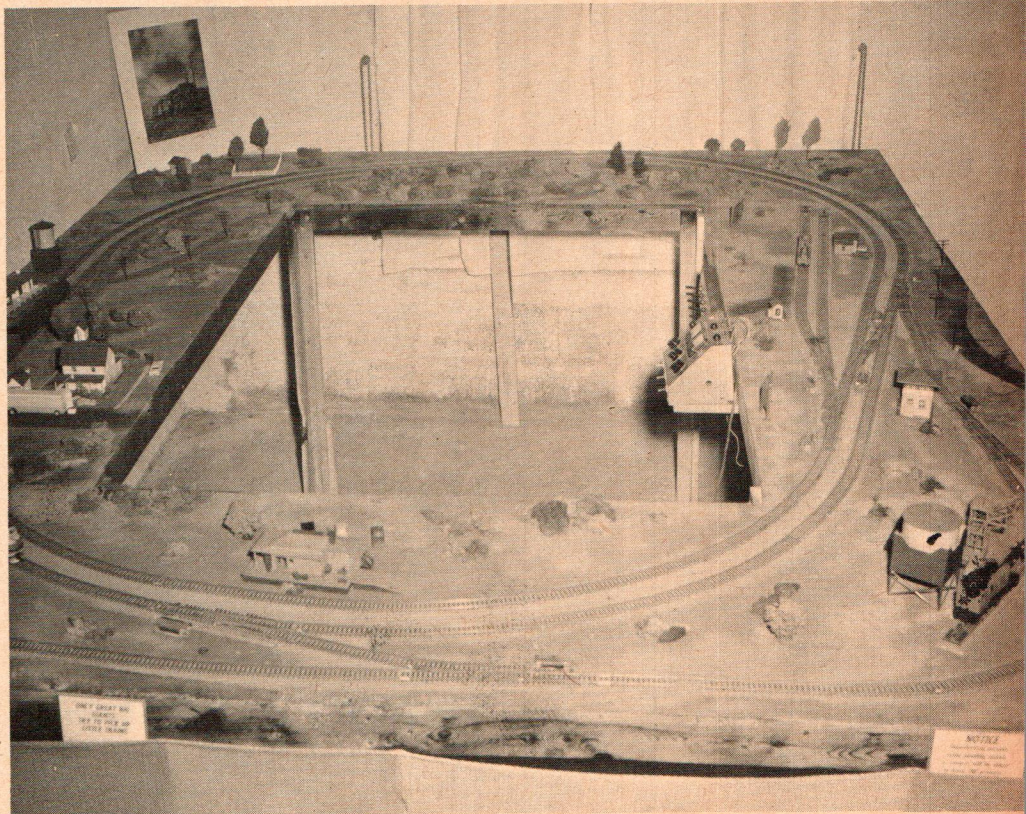
The framework against the wall could be ordinary lumber, with a backboard of plywood or pegboard; the table itself should be plywood. It would need a network of 1x2 lumber (on edge) attached to the bottom. This would show when the table was up, against the wall, so it would have to be neatly varnished or painted, with any bottom mounted switch motors, etc. carefully mounted. In somewhat similar situations, people have painted fantastic railroad scenes on such a bottom. Railroad photos could also be used. Homosote could be used for a roadbed, although it would have to be specially cut out. Something, anyhow, would be needed to cut down the roar of the plywood. Perhaps it could be cork or better yet rubber roadbed. If Tru-Scale Ready-Track which I highly recommend, or other wooden roadbed is used, it could be fastened to a piece of rubber which is in turn sandwiched above the plywood. An adhesive which never completely dries hard should be used, perhaps rubber cement, perhaps Goo. Any railroad running directly on a plywood table top makes as much noise as a drum.

The outer end of the table should have hinged legs which drop down to a vertical position when the layout is lowered; the inner edge is supported by the hinges. Note that the hinges have had to be placed on blocks. This is so the pivot point of each hinge comes at or just above the rail-heads of tracks which cross



Wood Tru-Scale roadbed provides needed stability to track joints on layout which folds up, easing strain on rail joiners and rail.

Scenery treatment on this type of railroad would be generally similar to that used in RMC's Ramsey-Mahwah Connecting RR 8X10' portable layout described in Sept., Oct., Dec. 1960 issues.



the break. Otherwise, if the pivot of the hinge is below the rail-head, the heads of adjacent rails will mutilate each other. Mention should be made also, of certain forbidden territories where it will not be possible to locate fixed structures—because when the table is folded up, you wouldn't want a station on the table to crush an enginehouse on the fixed part. Such forbidden territories are cross-hatched.

What to do with the central con-

trol hole when the table was up required a bit of thought. The idea of a display case came to mind. Constructed after the layout, designed to fill the hole—and of course fastened to the wall. With shelves and sliding clear plastic (or glass) doors, it would provide a showplace for cars and engines when not in use, and a storage space for the many pieces of rolling stock that would eventually be acquired, and which could not be put on the track all at once.

EXCHANGE PLACE

EXCHANGE and PASS listings are open to all readers. No "For Sale" or commercial listings accepted here (Classified Ads are 20c per word elsewhere in this magazine). We reserve right to edit any listing or reject any listings which are in our opinion commercial in nature. Limit, one listing every three issues. RMC cannot assume any responsibility for differences occurring between parties to an exchange. Listings cannot be repeated. Violations of standard ethics will be considered violations of postal laws and dealt with as such. Use your full real name. Sorry, no dealers. Print or type legibly. Allow 6-8 weeks for publication. Sample pass must accompany request for pass listings. No objectionable passes listed.

Send all Exchange listings to: Exchange Place, Railroad Model Craftsman, P. O. Drawer C, Ramsey, New Jersey 07446.

EXCHANGE: HO or cash. FOR: Old toy trains, cats., any ga., all cond. J. E. Martin, 411 Dolomite Ave., Bessemer, Ala.

EXCHANGE: HO Layout 2 eng.; track; cars; bldgs.; scenery; signals, etc. FOR: "O" or "S" ga., scale only—no tinplate. Also antique pistols, Polaroid camera, etc. FOR: O & S, Roger C. Morrison, Rt. 8, Box 923½ Bessemer, Ala.

EXCHANGE: Penn Line GG1, other HO. FOR: AHM 5055 GE diesel, Gr. Northern or Burlington, or AHM Berkshire. Need Atlas sws. w/controls. D. J. Martin, 4817 Main St., Brighton, Ala.

EXCHANGE: AF 4019, bagg. 4040. Pullman "America," obs. "Pleasant View," track, turnouts. Lionel cars 511-512-513. Good cond. FOR: HO locos, Keith Davidson, 8436 1st Ave. N. Room 204, Birmingham, Ala.

EXCHANGE: 1663 0-4-0 Magic Electrol set, 1666 pass. set from 1941-1942 Lionel cat., also 221 pass. set FOR: Large HO AHM eng. or other old tinplate. SAE. Paul Carter, Rt. 5, Box 2, Mobile, Ala.

EXCHANGE: Tyco AT&SF GP-20's, Tenshodo NYC diesel pass. train, asstd. frt. cars, pwr. pks., other items, exc. cond. SAE. FOR: Athearn SW-1500, Bob Clark, 2023 Fair Park Blvd., Little Rock, Ark.

WANT: AMER. Flyer 3/16" scale "O" ga. trucks for approx. 10 frt. cars, any cond. Robert Verre, 335 Loma Alto Dr., Altadena, Calif.

WANT: Amer. Flyer 3/16" scale "O" ga. sheetmetal frt. cars, O ga. A.F. straight track, any cond. Bill Young, 345 E. Loma Alto Dr., Altadena, Calif.

WANT: Amer. Flyer, Union Pac. Diesels & Streamline pass. cars, No. Pac. Streamliner, Union Pac. steamers 4-8-4, Jon Lee, 801 Monica Lane, Campbell, Calif.

EXCHANGE: Middleton's "No Shore" & unused kits or cash FOR: CERA Bulletins 106, 107, J. W. Sandberg, 1138 E. Rustic Rd., Escondido, Calif.

WANT: NWSL Rayonier 2-6-6-2T. State price & cond. 1st letter. G. N. Wagner, 2131 Duell St., Glendora, Calif.

EXCHANGE: Clean '57 Cad. 4-door. FOR: U.P. Big Boy, or another similar HO loco. D. M. Henry, Jr., 6401 Cornell Dr., Huntington Beach, Fla.

EXCHANGE: Modified USRA Light Pac. by PFM. Resembles S.P. Pacific. Write for details. WANT: Max Gray TW-8 4-8-0 or ? Douglas Lawrence, 348 Magee Ave., Mill Valley, Calif.

EXCHANGE: A.F. locos, D.C., other equip. FOR: Brass HO. No list. State wants. M. Conklin, 5116 Lankershim Blvd., North Hollywood, Calif.

WANT: A.F. "S" ga. No. Pac. diesel & pass. cars, C&O GP-7 & T&P, also circus set. State cond. & price. Walter J. Dronek, 6304 Fair Ave., North Hollywood, Calif.

WANT: PFM GN 4-8-0 Crown; Kidder SI&E Box Cab; McKeon motor car. State cond. & price. T. J. LeVell, 115 Secluded Ave., Redwood City, Calif.

WANT: Powered or Dummy Pennsy Lettered Tenshodo FT A&B's, Athearn HIF F-7 A&B's, Varney, F-3 A&B's. Also MDC 0-6-0. State price & cond. first letter. Sp/5 E. J. McConaughy, RA15602779, 170th Avn. Co. APO 96318, San Francisco, Calif.

EXCHANGE: Have used up SP & ATSF out of my new Walthers rub-on pass. car letter sets. Trade with anyone using NYC, GN, BURL, UP, B&O, NH, SOU & PENNSY. Leighton Keeling, 14241 Galy St., Tustin, Calif. (Oh, good grief! Ed.)

EXCHANGE: Lionel O ga. & AF S ga. equip. FOR O ga. scale cars, eng. or kits. V. A. Klein, 7200 W. 31 Pl., Denver, Colo.

EXCHANGE: C&NW-H-2-8-4, C&NW-D-4-4-2 Brass never pntd., GN S-1 4-8-4, Mantua 2-8-2 cast boiler & tender, GN cabooses, Tru-Scale ready track 48" radius & straight. FOR: Lobaugh, Max Gray, etc. SAE. E. G. Burick, Jr., 1417 Apache Dr., Rockford, Ill.

WANT: Parts for Penn-Line F-9, plastic gear boxes. Also info. on CNW Alco cab A-units now traded-in. E. E. Simmons, Jr., 10110 Old Orchard Court, Skokie, Ill.

WANT: #203 060 switcher, also Long Roof. walk for #717 or 2957 caboose. John Boncuore, 7311 W. 57th St., Summit, Ill.

EXCHANGE: Orig. Athearn gear drives, Tyco pwr. trucks, also KM FOR: Alco B units by Hobbytown or Lindsay, Ronald Morris, RR2, Box 600, Indianapolis, Ind.

EXCHANGE: AHM 4-4-0 #L-5067, mint cond.; fully automatic .22 rifle, antique Chinese chess set. FOR: Suydam Niles cars (pwrd.) or Brass locos, or Ambroid 1-5000 ser kits. Cherle E. Gilkerson, 973 N. Ritter Ave., Indianapolis, Ind.

EXCHANGE: Printing FOR: HO railitems. Letterheads, envelopes, etc. What have you? What do you want? W. K. Whalen, Box 82, Waynetown, Ind.

EXCHANGE: Diesel pnting. & lettering diagrams, etc. FOR: NKP equip., esp. Athearn, Globe, Roundhouse metal boxcars; Hobbyline plastic boxcars & gondas. Also NKP pix, time-tables. Tony Koester, 110 Knight's Trailer Court, West Lafayette, Ind.

EXCHANGE: Lionel #2031 diesel & pass. cars 2421, 2422, 2432 (dome), 2423 (obs.) all pntd. UP "City of Los Angeles." FOR: Lionel #2530 bagg. car. David Berner, 2119 Hunziker, Ames, Iowa.

WANT: PFM ltd. prod. models. IHB 0-8-0; SP 4-4-2; B&O 2-10-2; NYC 2-8-2 & C&O 2-8-4. Will pay collector's prices. Also Tenshodo AT&SF 2-10-4; M. B. Austin Governor Stanton 4-4-0 & Class D Baldwin-Westinghouse elect. Peter Downie, 1024 Grand Ave., Des Moines, Iowa.

EXCHANGE: Max Gray PRR DD-1 mint. cond. FOR: Max Gray steam or diesel. H. E. Cox, 2500 Bristol Pl., New Orleans, La.

EXCHANGE: Lindbergh SW6, Mantua cplrs. & parts, Vollmer bldgs. FOR: Ulrich L&N hopper, Hobbytown pwr. of any type, Varney L&N outside braced box car, SAE. H. R. Porter, 1042 Bardstown Rd., Louisville, Ky.

EXCHANGE: 6 pr. HO MHP Diaphragms & 2 HO Ulrich #100 Target signal kits. Exc. cond. FOR: Ho Ken Kidder 60' Harriman bagg-maint body. Chandler Cobb, 168 Whipple Rd., Kittery, Maine.

WANT: Maerklin "O" ga. "Cock O'The North." M. Cann, 181 Mill Lane, Amherst, Mass.

WANT: Frame for Hobbytown 2000 hp diesel A unit, kit #1212A. Has to be part #1250. Will purchase or trade. Eddie Kuhn, Jr., 29 Alpena Ave., Dedham, Mass.

WANT: HO 2-rail DC continental European prototype equip.; Fleischmann, Hornby (French), Jouef, Liliput, Piko, Rivarossi, etc. Allan Pommer, 898 Hyde Park Ave., Hyde Park, Mass.

EXCHANGE: Penn Line Mikado 2-8-2, very good cond. FOR: Craftsman type car kits such as Ambroid, Mainline, etc. No plastic kits. Donald DeForge, 86 Walnut St., Quincy, Mass.

EXCHANGE: Lionel 027 equip. FOR: Lionel HO equip. & access. SAE for list. All replies ans. Jim Merrill, 85 Gardner St., Waltham, Mass.

EXCHANGE: Lionel 259E eng. & tender, Pullmans, Obs., Hopper, Sunoco Tanker, 807 caboose; misc. Lionel & Hornby track & sws.; Pre-WW 2 Dinky & Tootsie Toys FOR: HO motive pwr. or rolling stock. Frank Eland, 1015 S. 1st Ave., Alpena, Mich.

WANT: Ives 1694, 1764. Pass. cars 1695-96-97, 1685-6-7 Red & Blue. Any other Ives or Lionel pass. cars "O" & std. any ga. Send list. Lewis Simmons, 1436 Tulare Way, Upland, Calif.

EXCHANGE: Athearn, Varney Silver Streak, metal, wood BAR Box, reefers, blt. up. Back RMC, MRR, Trains, RR Mag., Official Guides. FOR: Lionel Std., AF "S" ga., cat., RR time-tables prior 1940, Allen Sharp, 100 Shennecossett Pkway., Groton, Conn.

WANT: "Bridge and Trestle Handbook for Model Railroaders" by Paul Mallory, and unblt. kit of 4-wheel caboose by Silver Streak. Donald A. Clerke, 132 Laurel St., Wapping, Conn.

WANT: Lionel IC #2363 and Lionel D&RGW #2379. R. C. Bartlett, 560 Bay Point Rd., Miami, Fla.

EXCHANGE: Tenshodo SD9; FT A&B; Gr. North. SI 4-8-4; GN Tenshodo pass cars. Penn Line GG1; Athearn lighted std. pass cars. FOR: Gem Pennsy MIA 4-8-4; LMB, NYC 4-6-4 J3A Hudson; AHM Brass Pennsy, etc. G. R. Pinizzotto, 1915 - 10 St. North, St. Petersburg 4, Fla.

EXCHANGE: TT loco, cars, track &/or complete photo darkroom equip. FOR: HO. Prefer Athearn, AHM, Jim Mitchell, RR #2, Box 2014, South Daytona, Fla.

EXCHANGE: Max Gray O ga. Santa Fe 2-10-4, properly pntd., exc. cond. FOR: Max Gray O ga. Santa Fe 4-8-4 or NKP 2-8-4 or Penn. 4-8-2 or NYC 4-8-2 or NYC 4-8-4 like cond. Dr. George Horton, College of Business, University of Georgia, Athens, Ga.

WANT: Varney U.P. pass. cars. State type, price & cond. 1st letter. All letters ans. Robert Hoenes, Box 34507, Ga. Tech, Atlanta, Ga.

EXCHANGE: List std. & O ga. SAE. FOR: Lionel: 8976, gray 763E, 2624, 250E, 715 Sunoco, 753, 783, 792-3-4, 700, 701, 703, 706, 152, 156, 156X, 158, cat. Tom Johnson, 815 E. Olive St., Arlington Heights, Ill.

WANT: Info., post cards, pix of Emporia Rwy. & Light Co., which op. in Emporia, Lyon Co., Kansas during 1910 to 1927. All letters ans. B. E. Hotzel, 900 W. Belden Ave., Chicago, Ill.

WANT: Pre-1900 cat. illustrating misc. equip., machinery & other supplies for RRs, mines, contractors, etc. J. McGuan, 8131 S. Maplewood, Chicago, Ill.

EXCHANGE: 3 Tenshodo SD-9 rd. switchers. 2 U.P., 1 W.P. exc. cond., orig. boxes. FOR 3 same type units lettered for DM&IR. Expect same cond. Curtis J. Repasi, 10201 S. Lowe Ave., Chicago, Ill.

WANT: HO Penn Scale Models Fairbanks-Morse 1600 hp Baby Trainmaster Rd. Switcher - pwr. good cond. Jim Trecker, 1786 Lunt Ave., Des Plaines, Ill.

EXCHANGE: Ambroid kit #5 1st ser. Western Union Material Car, perfect cond. FOR: Ambroid kit #5 2nd ser. Pulpwood car in like cond. Joe Ladd, 323 N. Schrader St., Havana, Ill.

EXCHANGE: Westbrook Gond. & Box car kit; Super Scale Box car kit w/t. Kaiser Hobbs Alum. pass. kits, Lionel tinplate. FOR: A.F. S ga. Larry Urbanski, 7829 S. Menard, Oak Lawn, Ill.

EXCHANGE: Collection Lionel, Amer. Flyer & Toy Trains cat. FOR: HO unblt., no parts missing, no works started, undamaged eng. kits. SAE for list. Oscar Beyer, 15426 Comstock, Grand Haven, Mich.

EXCHANGE: Am. Flyer "S" ga. FOR: Lionel, Am. Flyer std. ga. SAE for list. W. C. Wallish, 1220 Taylor St., Grand Haven, Mich.

EXCHANGE: Athearn Pac. 4-6-2, ATSF & Athearn RDC Combine Hi-F. Both exc. FOR: 2 Athearn Geared GP-30 kits or R-T-R. A. H. Lieder, 1206 Hawthorn Rd., Grosse Pointe, Mich.

EXCHANGE: Tyco Pac. (kit blt.) Varney 2-8-0 kit, AHM 80' Pennsy pass. cars, Athearn 50' plug box cars. FOR: Locos & rolling stock of 1880 thru WW I era. SAE for list. H. Phillips, 20643 Maple Lane, Grosse Pointe, Mich.

EXCHANGE: Varney brass Berkshire w/tender, pntd., mint cond. FOR: United's HON3 2-6-6-2 Sumpter Valley #25 w/tender. Also need D&RGW K-27 or K-28. Also have large roundhouse of HO steam to trade. Bob Kitley, Box 402, Haslett, Mich.

WANT: O ga. or On3 Shay trucks. Must be good cond. G. Holloway, 3701 Valley Dr., Midland, Mich.

EXCHANGE: #726, 736, 2329, 2464 box car. FOR: #2331, 8976 or what have you? George Richard, 29492 Craw Dr., Selfridge AFB Mich.

WANT: Lionel 1885 Blue "General" Coach, mint cond. James Greytak, 1401 Ave. B, N.W., Great Falls, Mont.

EXCHANGE: Atlas snap-track 18" curved & 9" straight, turntable, Revell F7 A unit lighted, all wheels pwr'd. Track brass, very good cond. FOR: Flexible track, Varney SW7 or Lindbergh SW model, or Athearn SW1500 "cow." Arthur Jacobson, 2616—4th Ave. N., Great Falls, Mont.

WANT: Pen Pals interested in Railroads. Mr. & Mrs. Leo E. Bangert, P. O. Box 381, North Platte, Neb.

WANT: Penn Crusader or Varney STMLN. 2-6-2 Crown CB&Q 4-8-4 Austin gas turbine Tenshodo SD 9 Dallas M.C. FT-A & B pwr'd., Super scale SW-1 Tyco LTW-12 Walther shuttle-jack, E-7A pwr. Trains Mag. Mar. '63, Jan. '62, Dec. '61. Frank Lester, c/o Lasco Corp., 5362 Paradise Rd., Las Vegas, Nev.

WANT: Marx Commodore Vanderbilt Red & Silver w/tender & cars. Also Roundhouse or Athearn box car kits or blt. less cplrs. Price & cond. 1st letter. Joe Burkell, 133 Lehigh Ave., Blackwood, N. J.

EXCHANGE: Penn Line E6 & K4 kits; Varney F3 A-B-A Brute kit & SW7, blt. & pntd. B&O; Amer. Beauty 60' B&O kits; Walther Pugs NYC (blt.); Dual pk. & cab cont. box. FOR: Lionel or Ives std. or O ga. Paul Witte, 44 Langdon Rd., Burlington, N. J.

EXCHANGE: O Scale Kasiner kits w/trucks, all 85', Corrugated Obs., Dome, Mail; Smooth Mail. FOR: Corrugated 85' diner, 2 coaches, bagg., sleeper. Also have Multi Unit 2R 36" wheel motors to trade for pr. Central Loco diesel transmission. G. J. Raymus, 1 Perry Rd., East Brunswick, N. J.

WANT: Any 12 whl. old wide ga. locos or parts for same, pass. cars over 16" long, steam locos 1 ga., 1/2" or 3/4" scale. State numbers, color, cond. & price. W. P. Sauls, 17-42 Hunter Pl., Fair Lawn, N. J.

WANT: Marklin, Bing & other European lamp posts & telegraph posts of all kinds made before 1914. R. T. Hess, R. D. 5, Box 80, Flemington, N. J.

EXCHANGE: Mantua Shark Nose Baldwin 1 truck pwr'd. Mantua Roundhouse Goat kit, M.D.C. Yard Hog kit. FOR: Walther Alco Switcher, Kemtron Baldwin Switcher or P.F.M. EMD SW-7. John Koenig, 63 Passaic Ave., Hasbrouck Heights, N. J.

EXCHANGE: 100' Atlas tie strip, 15' nickle silver rail code #100, Atlas manual switch machines. FOR: Tenshodo pass. cars or Tyco Streamline Coaches. Paul Carpenito, 310 Crann St., Hillsdale, N. J.

WANT: Pix, negs., TTs & relics of Maine 2' ga. RRs, esp. SRRL & WW&F. Also book "The Twenty-Four-Inch Gauge RR at Bridgton, Maine." Greg Pulis, 48 Church St., Ramsey, N. J.

EXCHANGE: Varney F-3 A-units, or B-unit. SAE for list. FOR: Brass 2-8-2; 2-8-0, etc. Pat Munn, 1922 Cielo Hobbs, N. M.

WANT: FM diesel Rivarossi Milw. Rd. B units, Penn Line GN Vista Dome, Dome Diner & Full Dome Car, w or w/o trucks & cplrs. Penn. Scale Model of Fairbanks Morse rd. switcher, others. Bob Barker, Box #3, Matawan, Minn.

EXCHANGE: Hobbytown "B" Dummy; Athearn CBQ Dummy "B." pwr'd. CBQ GP9; Herkimer shorty pass.; Athearn NH bagg. & frt. cars; Revell SW-7; Lionel Alco "A" hood. FOR: blt. HO bldgs., factories, motive pwr. Donald Rice, 227 E. Howard St., Winona, Minn.

EXCHANGE: Ives, Early AF frt. & pass. cars, Pre-War Lionel & later Lionel frt. cars. FOR: Lionel & AF cars, eng. before 1955. SAE for list. Jerry Sanders, 2926 E. Trafficway, Springfield, Mo.

WANT: Gem PRR M1a 4-8-2. State price & cond. C. R. Yungkurth, 306 Ridgefield Rd., Endicott, N. Y.

WANT: Pre-1940 Tootsie and Dinky Toys, Hubley metal fire eng. Any cond. R. Foster, 7405 Kessel St., Forest Hills, N. Y.

WANT: Amer. Beauty Lines Penn. streamlined pass. cars, back issues & bound volumes of RMC & MR. State price & cond. Robert Gluckman, 99 Green Moor Way, Apt. #7, Henrietta, N. Y.

EXCHANGE: 2-10-0, 2-8-2, 2-8-4, 4-6-2. English Pac, Hobby Town Alco Rd. switcher, AHM Atlantic & A. F. Hudson. FOR: Penn-Line T1, Bowser 4-6-6-4, Brass Steam Junkers. Ed Greffe, 90 Root St., Oslip, N. Y.

WANT: 4 Main Line Ralston Purina 40' Refrigerator car kits, exc. cond. H. B. Briggs, 20 Woodland Dr., Kings Park, L. I., N. Y.

WANT: Tenshodo FT, Valiant Models E-9. Motors not important. State cond & price 1st letter. J. T. Roberts, Paris & Gilbert Rds., New Hartford, N. Y.

WANT: Lionel 12 whl. tender #2226WX or 2736W, fair to good cond. Reasonable. S/Sgt. A. F. Corders, 7322 Air Base Group, P. O. Box 3169 A.P.O. 09010 N. Y.

EXCHANGE: Fleischmann HO Alco diesel, cab type, 1500 h.p. model, pwr'd., pntd., in new NYC colors, exc. cond. FOR: Hobbytown RS-2 Alco switcher (HO), pwr'd. J. S. Horvath, 271 Ave. C, New York, N. Y.

EXCHANGE: Bowser Motor, Bowser Mtn. Frame, 14 whl. tender. Exc. cond. FOR: Hobby Town Alco switcher or what have you? M. B. Loncasty, Penfield, N. Y.

EXCHANGE: New York Central & Hudson River books "Block Signal Rules" Mar. 1906: "Construction and Maintenance, Signal Department" June 1908. Also 8x10 RR pix. FOR: HO steam locos, pref. scarcer items—Allan Sherry, 5445 Netherland Ave., Riverdale, N. Y.

EXCHANGE: PFM, CNW 4-8-4, GN 2-8-2, 0-8-0, 4-8-4, Gem Reading 4-8-3, B&O 4-6-2. FOR: PFM, N&W 4-8-4, GN SD-9, Canadian Steam, Grant Canadian pass. cars. Robert Gullo, 23 Pin Oak Lane, Rochester, N. Y.

EXCHANGE: HO ga. equip. All types of turnouts, track, etc. FOR: HO locos, pwr. pks., etc. Your list for mine. Gene Kirby, RFD 3, Marysville, Ohio.

WANT: Ideal Tiny Town bldgs. #B-1, B-7, B-8, B-10, B-12, B-15, B-30, B-32, B-34, B-36, B-37, B-39, B-41, B-43 or any HO ga. Westchester Model Bldgs., kit pfd. or blt. up. All replies ans. Walter Barth, Beresford Ave., Parma Heights, Ohio.

WANT: Interior pix of wood sheathed pass., coach sleeper, cafe obs. & bagg., postal cars, 1900 to 1930 era. Pref. those used by Canadian Pac. RR. Daniel Lynch, Jr., 4047 E. 24th Pl., Tulsa, Okla.

EXCHANGE: Loco Dictionary 1906, fine cond. FOR: Ives trains. What have you to offer? Alex. Barnett, 2442 N. E. 36th Ave., Portland, Ore.

PASS EXCHANGE

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MOJAVE & WESTERN R. R.: (Printed) Robert L. Miller, 1800 Massachusetts, Topeka, Kans.

CENTRAL NEW ENGLAND R. R.: (Printed) Jack Armstrong, Jr., 197 North Summer St., Adams, Mass. 01220.

NORTHERN FLATS R. R.: (Printed) Philip Coffey, 300 Northland Ave., Rochester, N. Y. 14609.

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JERSEY COAST & WESTERN R. R.: (Printed) Rowland E. King, 41 S. Midland Ave., Kearney, N. J. 07032.

PACIFIC COAST LINE: (Printed) Dale M. Henry, Jr., 6401 Cornell Dr., Huntington Beach, Calif. 92646.

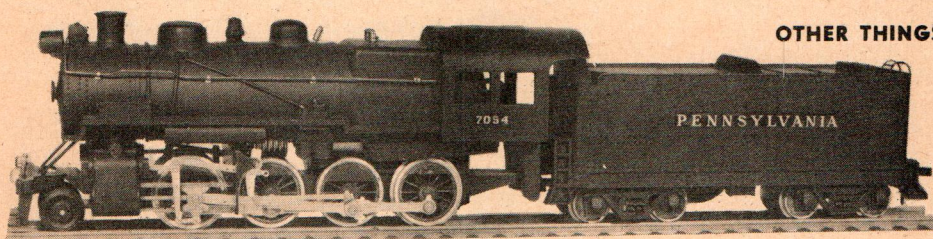
WALNUT VALLEY LINES: (Printed) P. W. Landgraf, 907 Mansfield Ave., Hollywood, Calif. 90038.

BUFFALO SHORT LINE R. R.: Mark Lewis, 43 Durham Ave., Buffalo 15, N. Y.

ELENORA CENTRAL R. R.: (Printed) Tony Clayton, 109 Laurentian Dr., London, Ont., Canada.

BUMBLE BEE CREEK R. R.: (Printed) S/Sgt. John V. Henrikson, 7600 A. B. GP Bx. 1254, APO, New York 09218.

MINISCULE & FANTAN R. R.: (Printed) Ray Dixon, 1019 Chicago Ave., Nederland, Texas 77627.



PENNSYLVANIA RR H-9, 2-8-0

This engine has brass pop valves, whistle, round number plate and handrail stanchions; diecast walks with air compressor, tank and power reverse cast in place; .020" handrail wire; 62" spoke drivers; embossed side and mainrods; diecast alligator crossheads with arms; operating valve gear; spring-loaded pony truck and heavy lead diecast boiler. Center drivers are blind—same as prototype.

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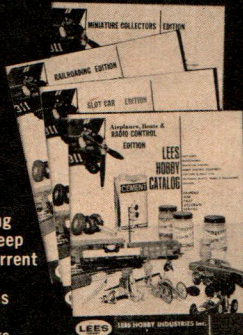
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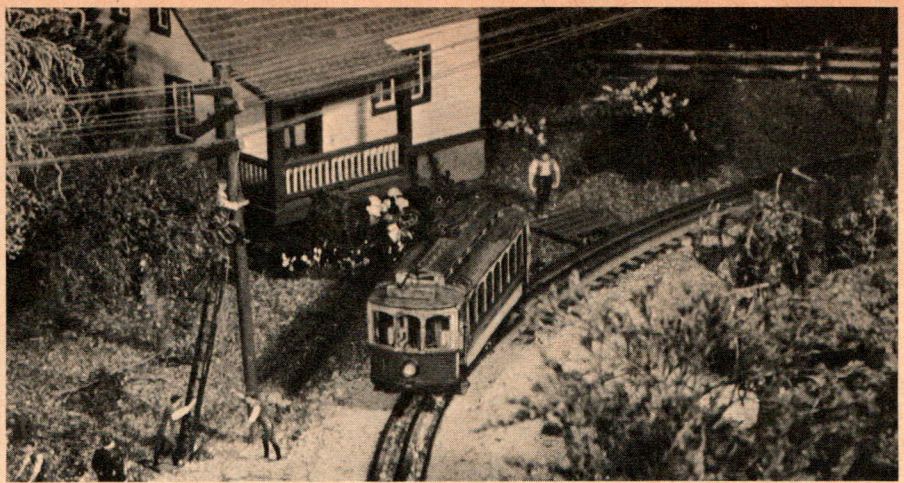
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The basic system, simplified by using a common rail, is shown together with its power supply in Figure 1. The power supply, itself consists merely of a transformer and four diodes, and provides both positive and negative DC voltages with respect to the common rail, or ground. This type of supply is not new and has been described by J. J. Schmidt in his excellent article, "The Electrical System of the BD&P", in the July issue of RMC. The transformer can be a single unit (as illustrated sche-

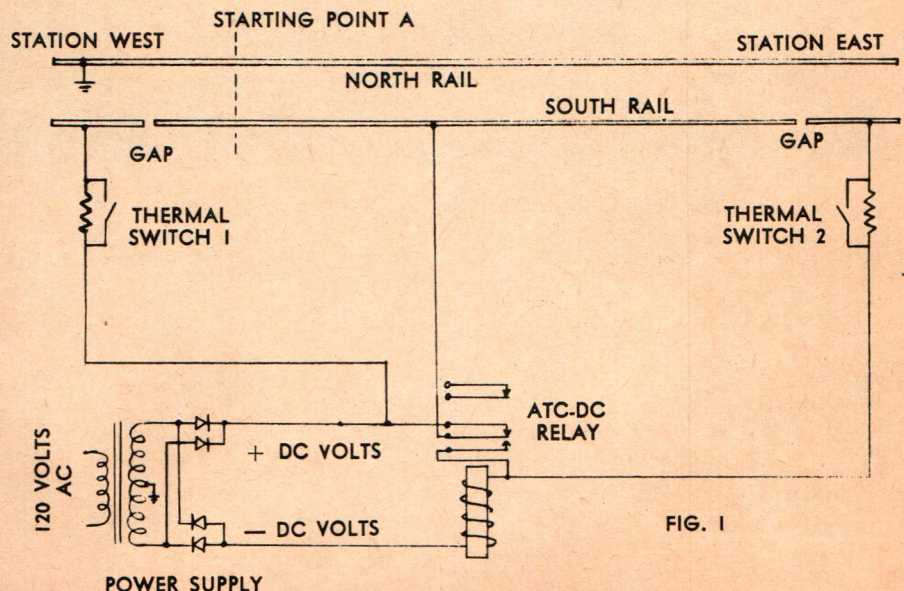


FIG. 1

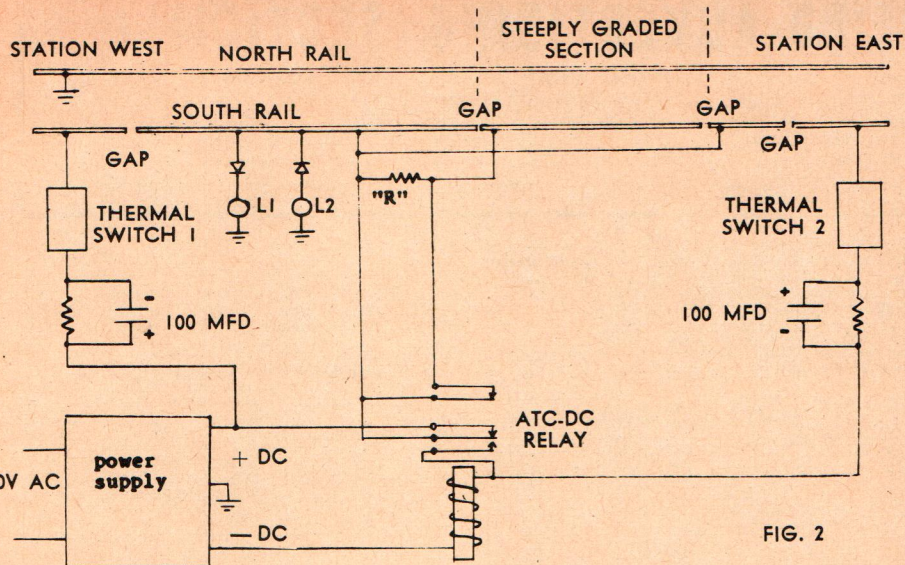


FIG. 2

matically) or it can be made up of two or more surplus filament transformers, depending on the output voltage required for a particular layout. I use three 6.3-volt center-tapped filament transformers with their primary windings connected in parallel and their secondaries in series to provide both +9 and -9 volts DC. For many applications (such as an HO-2½-scale industrial spur) it may suffice to use a single 12.6-volt center-tapped filament transformer to provide both +6 and -6 volts DC. The choice of voltage should be such that the train will run at prototypical speed (say, 10 or 15 scale miles per hour); this voltage can be obtained either by proper selection of the power transformer as implied in Figure 1 or by insertion of a fixed power resistor (not shown) in the ground-lead from the center tap of the transformer. As a further refinement, you may wish to insert a voltage dropping resistor and shunting capacitor (100 MFD or more) in each of the two hot leads (see Figure 2) to improve performance at very low speeds in the manner developed by Paul Mallery in his highly instructive article, "Poor Man's Transistor Throttle" April 1965 RMC. For the modest requirements of this system, almost any of the commercially available diodes will be satisfactory; I use four 200-volt, 500-milliamper diodes of the so-called "Top-Hat" variety that sell for about 25c each. An on-off switch and a fuse or circuit breaker are recommended optional equipment.

All of the automatic switching is accomplished with a pair of A. B. Boyd Thermal Switches and a Tru-Scale ATC-DC Relay connected as shown in Figure 1. For consistency with the indicated polarities, it is necessary that the north rail be made the common or through rail—with an insulated gap in the south rail at each of the two terminal sections. The wiring is so straightforward that any

special comment seems unnecessary, and we shall proceed at once with a description of system operations.

Let's suppose you're running a silver mine, with Station East being a loading point somewhere inside the mine, and Station West a dump ramp where the silver ore is unloaded for transfer to your main line. You may choose to start the day's operation with the ore train at some intermediate point along the route, say, at point "A" in Figure 1. When the power line is plugged into its 120-volt AC wall receptacle the train will go at once to the mine and stop at Station East. There it will remain until Thermal Switch #2 heats up enough to close its contacts; this will start the train toward Station West and also operate the ATC-DC Relay to put a negative voltage on the central south rail so that the train will continue to back up on its way from the mine to the dump ramp. At Station West (on the dump ramp) the locomotive will no longer draw current through the ATC-DC Relay winding; the Relay will release and the train will wait at Station West until Thermal Switch #1 has time to warm up and close its contact. In the meanwhile Thermal Switch #2 is cooling off and opening its contact. When Thermal Switch #1 operates, the train will return to the mine for another load of silver ore. This cycle will be repeated again and again until you unplug the power supply. That's all there is to it.

If the string of ore cars is to be pulled into the mine (Station East) and subsequently pushed back to the ramp (Station West), it should be noted that the isolated section in the mine need be no longer than the locomotive, but that the other isolated section on the ramp must be long enough to accommodate the entire train.

If the two stations are at different levels such that there is a steep grade

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TOY TRAIN COLLECTORS

TOY TRAINS, all gauges, all ages, accessories, toy train catalogs, Erector/Mecano sets, wanted. Alden Miller, 3212-34th Avenue South, Minneapolis, Minnesota, 55406. TF

WANTED—TOY TRAINS, built before 1942. Send price and description. Top prices paid. Jack Windt, 1939 Golf St., Sarasota, Fla. 33577. 6-66

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LIONEL 1929 CATALOG, No. 444 roundhouse, No. 441 weighing scale, No. 94 high tension towers. J. Glaudel, 412 Huntingdon Pike, Philadelphia, Pa. 19111.

STANDARD GAUGE LIONEL Blue Comet and State Cars wanted in poor to fair condition. Junkers acceptable. K. R. Smiley, 13709 Casimir, Gardena, Calif. 90249.

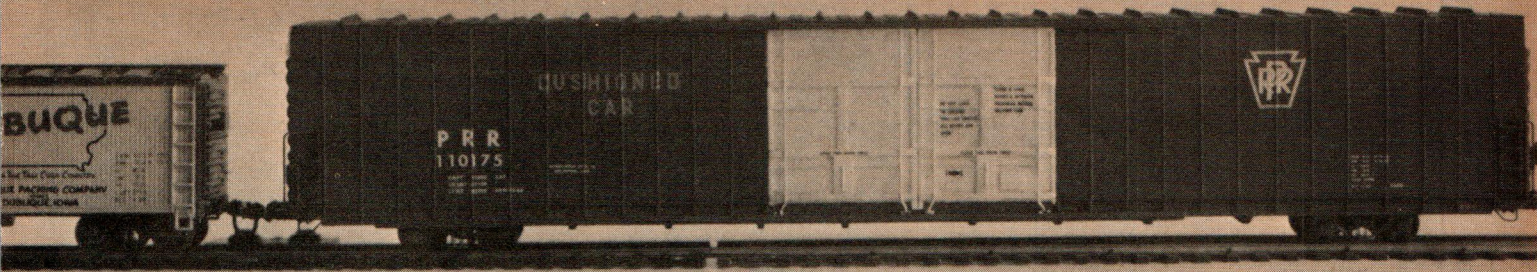
from Station West up to Station East you may want to feed the graded section through a series resistor (as "R" in Figure 2) and shunt the resistor with the previously unused pair of springs (a "break" contact) on the ATC-DC Relay. Thus, the added resistor "R" is normally shorted out by the Relay for the uphill climb, but is enabled automatically by the Relay to reduce the voltage during the east-west run so that the train won't race down to the dump ramp. The size of the resistor can be determined readily by trial for your particular layout

and speed preferences. A spare power rheostat could, of course, be used temporarily to measure the size of a fixed resistor to be installed later for permanent use.

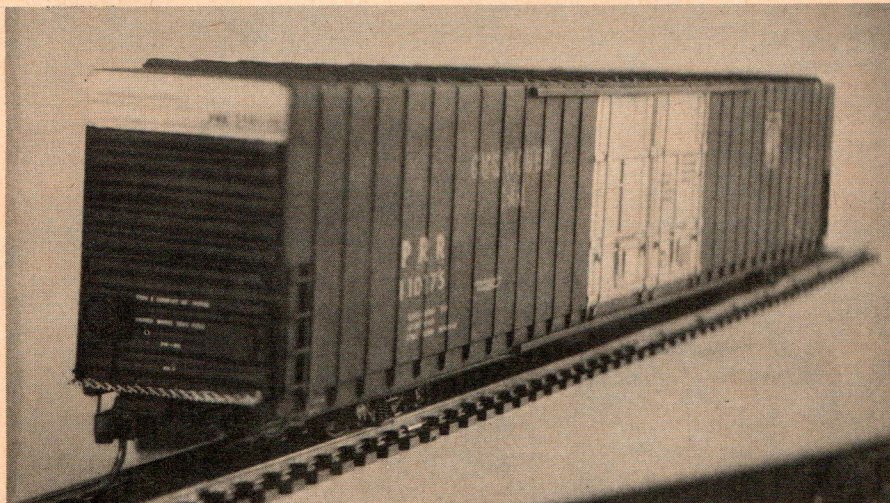
As an additional feature, the common rail system can readily be used to apply power directly from one rail to simple block or starting signals. Here, your signal lamps (such as L1 and L2 in Figure 2) are connected to the south rail through inexpensive diodes so that each lamp will light or not, depending on whether the south rail is positive or negative at

the time. Many variations are clearly possible.

This fully automated industrial spur has been reduced to its bare essentials; its power supply and switching elements can be purchased and assembled for less than \$15. It does not require any supplementary power source beyond that used for the locomotive, itself; nor does it involve any electrical or mechanical modifications of the train. It is thought to be particularly well adapted for use with your HOn3 or HOn2½-scale companion line.



86-foot Hy-Cube boxcar built from HO Quality Craft kit, is all wood model of Northeastern wood, supplemented with Cal-Scale and other parts. Model is loaded with intricate, unfamiliar detail.



TEST TRACK

PRR 86 Ft. Hy-Cube Box Car: HO

Mfd. by Quality Craft Models, Villa Vista, Box 428, Northumberland, Pa.

Here's another giant from Quality Craft: a big monstrous, homely, ungainly giant that's one of the newest things on rails and will dwarf almost anything else in its field. Prototype is the 86'6" Pennsylvania Railroad No. 110175, built by Pullman-Standard in the fall of 1964. Other roads using these cars include the DT&I and the L&N. Among their uses: carrying automobile parts to far-flung assembly plants.

The kit is a honey, and includes Northeastern stripwood and shapes, color coded for easy identification; Cal-Scale parts such as ladders, AB brake system, universal coupler pockets; castings for the ends, wire mesh

for end walks, brass for coupler hangers, Champion decals, roller bearing RP-25 trucks, and assorted wire.

Construction follows basic procedure: floor, roof section, and spacer blocks. In building the model, many pieces run in perpendicular lines. The weld lines should run perpendicular to the floor line and the roof ribs and roof plates should run squarely across the roof. It is recommended that a T-square be used in laying out these lines to assure squareness. Care in laying out these lines will be rewarded by the appearance of the finished car.

Weld lines are simulated by grooving the sides, and cementing .013 wire in the grooves. It's a good idea to lay out all the wire before starting to avoid any chance of error in using the wrong size wire.

Since the prototype is a steel car, care should be taken with the finish so no wood grain shows through the paint. Pay special attention to the door opening and all door parts. Sand and seal before fitting, since aluminum paint tends to magnify imperfections.

We mounted our coupler pockets rigidly. If your curves are of less than 24-inch radii, we'd suggest substituting trucks with couplers attached. We also recommend adding a bit of weight before closing up the car body. Six ounces seems about right.

The lack of a roof walk and grab irons contribute to the very different appearance of this car. It dwarfs everything coupled to it, yet it exemplifies the latest trend in real railroading. Any model rail who wants to keep up to date will need one or more of these on his system. The overall quality of the kit is excellent. List price, \$5.95 per kit with trucks.

36 Ft. Stock Car: O

Mfd. by Main Line Models, P.O. Box 250, Falls Church, Va.

Main Line Models has just released the first six cars in a brand-new series of super detailed O gauge freight car kits that rank among the finest we've ever seen. The first release is a 36-ft. stock car kit offered in a choice of six different road names: OSC-1 Swift Livestock Express, OSC-2 Armour Express, OSC-3 Virginian, OSC-4 New York Central, OSC-5 Southern Pacific, and OSC-6 Great Northern. Twelve additional road names are planned, to be released in two series of six each.

The kit features all wood construction (pine), smoothly cut. The sides and ends come completely preassembled, including bracing, pre-painted and silk screen lettered. Matching paint is Floquil boxcar red. Lettering is carried through to the reporting marks on the car ends.

The roof is made up of five pieces of wood, three for the underside and two additional sheets laid on top that also provide the correct, accurately shaped roof overhang. With the exception of the roof ribs, all wood parts in this kit come completely cut to the correct length.

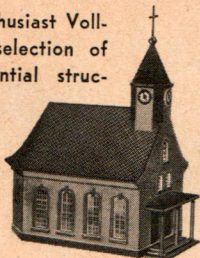
The floor departs from normal model car construction, being formed from 78 pieces of assorted wood shapes to provide an authentic decked wood floor.

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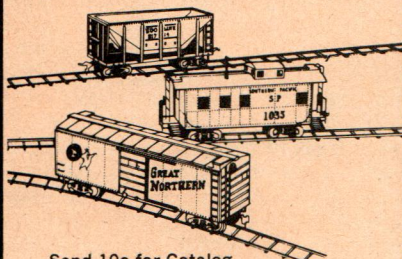
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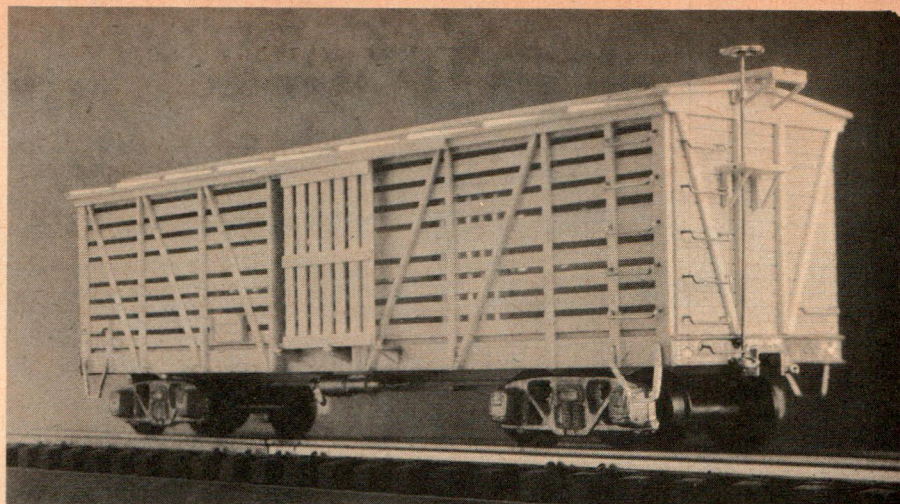
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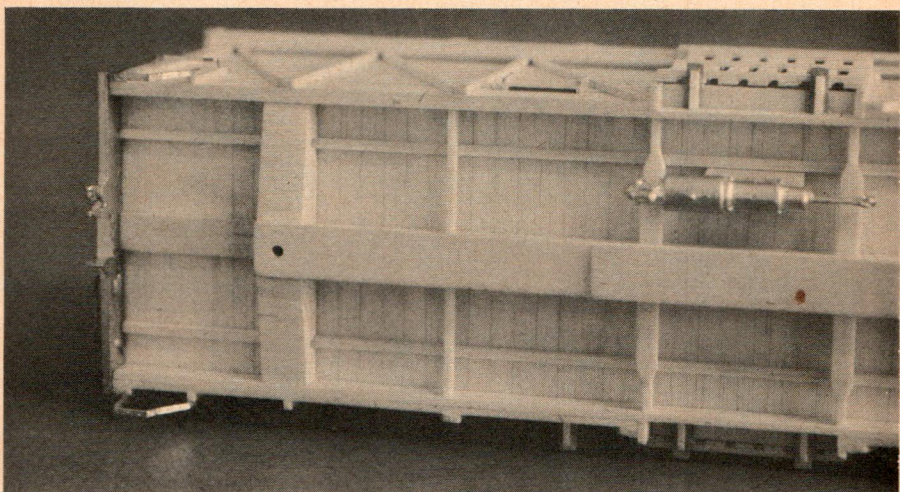
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2602 West Encanto Blvd., Phoenix, Ariz.

Sales to the Trade Only



First in a new series of scale O gauge freight car by Main Line Models is 36-foot wood stock car offered with choice of six different road names, with 12 more to come. Kit includes pre-painted and silk screen lettered sides and ends completely assembled.



Detail view of car underbody shows part of 78-piece floor assembly representing radical departure from traditional solid floor piece. All wood parts are precut to length except roof ribs.

A number of linotype metal castings, exhibiting very fine detail, are included with the kit, among them unique cast door cleats. The kit requires about three easy evenings to complete. Our sample model is a pre-production sample in which the assembled sides and ends had not yet been painted or lettered, hence the letter boards are also omitted from our model. We did inspect other samples of Main Line O gauge silk screen work and feel it is the equal or superior to their HO work.

The kit is packed without trucks or couplers, permitting the modeler to choose his favorites. The accurately milled wood bolsters provide a firm base for mounting any truck and the completed car is remarkably free of wobble. The coupler pocket, as designed will fit most standard O scale couplers. List price of the kit is \$9.95 and we consider it an excellent value for the money. Deliveries of the first series of six cars was scheduled for early May.

The car is also readily adaptable to use on Lionel track. This is the type

of car which makes full use of the unique assets inherent in O scale. We understand that the stock car kit is only the first in an entirely new line of super detailed O gauge kits from Main Line. The HO line also continues in full production.

Truss Log Car: HO Disconnected Log Car: HO

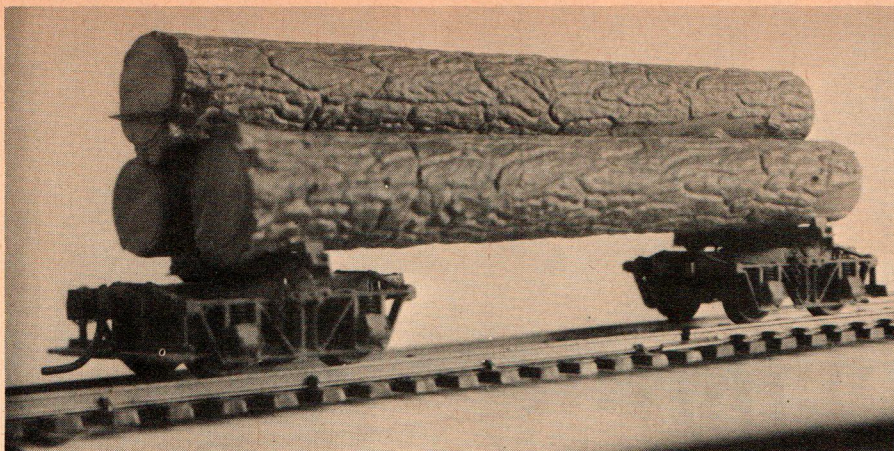
Mfd. by Kadee Metal Products Co.,
P.O. Box 266, Medford, Oregon 97501.

Not previously reviewed in these pages are two highly unique logging car kits, both of which belong on the roster of any logging road.

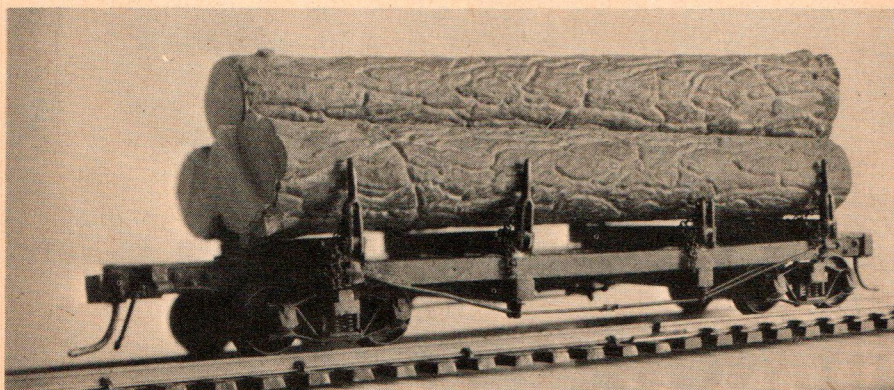
Kit L-101A is a Disconnected Type Logging Car, consisting of two pairs of special arch bar trucks having their own self contained frame in each frame. Each truck is disconnected from the other without any frame connecting the two, when they are used in actual service hauling heavy logs (the logs acting as the frame).

The kit comes with the basic truck assembled. Each journal is individually sprung, making tracking on even the roughest track quite good. As-

MAY, 1966



Kadee Disconnect Log Car with load of three logs is unusual in that the car has no main frame; the load itself providing needed stability. Trucks can also be run light, all coupled together.



Kadee truss rod log car has combined wood and metal construction plus load of three logs. Kit includes full brake rigging detail, sprung arch bar trucks, RP-25 flanges, universal coupler pockets.

sembly consists of attaching the brake wheel and ratchet, log bunks and chains. Assembling the logs is a matter of cementing the ends of the detailed plastic logs to suit your own desires. Many variations are possible, including shortening the logs. Logs can also be loaded on the trucks in various ways, permitting many variations should several of these cars be purchased. Real logs could also be cut if desired.

All parts are pre-blackened. Logs are also pre-painted. A bit of touching up is all that is required.

Each kit comes with one pair of Kadee MKD delayed action couplers and one pair of dummy couplers. If desired, some of the disconnected trucks can be kept coupled together without any load. Assembly time, a few hours. Kit price, \$4.35.

The Truss Log Car, Kit L-103, carries the same three log load as the disconnect car, but has its own special wood frame with truss rods, arch bar trucks, and other detail. Each step of the construction is outlined in detail, supplemented with numbers and exploded views.

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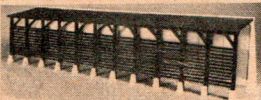
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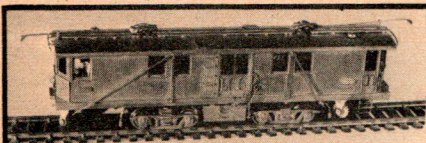
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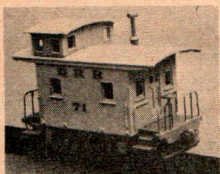


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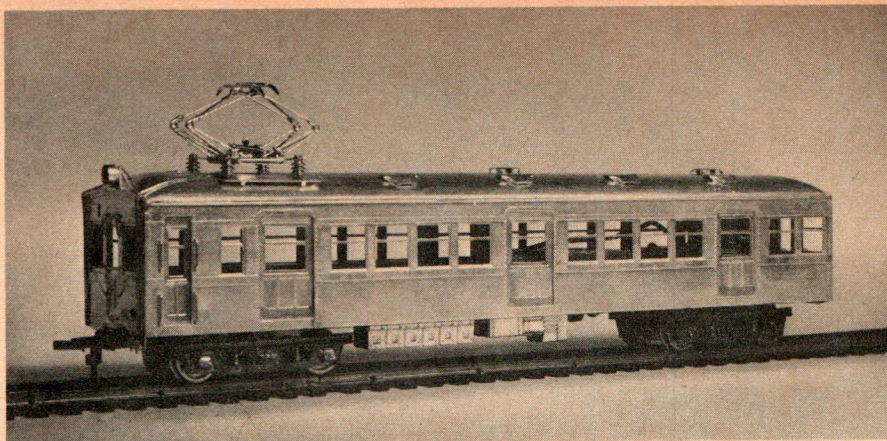
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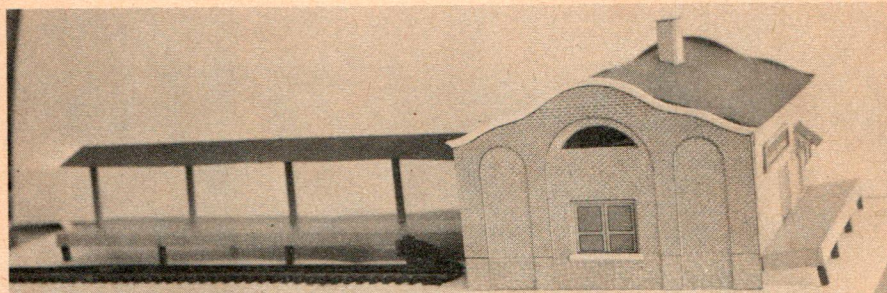
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Box 261 "Unique Miniatures" Monrovia, Calif.



Ken Kidder 57 ft. rapid transit motor car, model of JNR class 11 passenger unit. Car is Built-up brass with working pantograph.



Castings are all finely detailed, and frequently, delicate. Wood parts are cut to shape, pre-drilled, and painted. Brake system wire is pre-cut and bent as required. Kadee universal draft gear is also provided but no couplers are included with the car. The trucks are Kadees' all-metal arch bars, free rolling and sprung, with RP-25 flanges.

A string of ten or twelve of these swaying behind a slow moving Shay or Climax down a precarious grade would be sheer delight to watch.

57 Ft. Rapid Transit Cars: HO
Imported by Ken Kidder, Box 213, San Francisco, California 94101.

Ken Kidder's current contribution to the field of rapid transit modeling is a group of Japanese National Rail-

ways suburban or rapid transit cars in 57-foot lengths. The real cars are operated mainly around Tokyo and the three classes that are modeled are as follows: *Passenger motor, class 11*. Steel cars built from 1934 to 1940, using trucks and equipment from older wood cars which were class 50. *Baggage motor, class 13*. Steel cars rebuilt in 1948 from passenger motors, class 34, built in 1933, probably from old class 53 cars. Capacity—11 tons. *Passenger trailer, class 16*. Steel cars built from wood class 65 cars, utilizing old equipment.

In 1965, there were sixteen class 13 cars, and 380 motor and trailers in service. There is also a class 17 trailer without controls, but this is not available as a model. Trucks are of two types, JNR's DT-10 or TR-14. The prototype cars are painted maroon. Series numbers are not available.

The models are production models, made on a large scale in Japan and of course have the inherent advantages of mass production. They are well-assembled from uniformly made parts. The drives are simple enough, consisting of a vertically mounted motor with a worm driving train of spur gears on a single motor truck per car. Trucks are not sprung. Cars are fitted for two-rail operation, but could be wired to operate from pantographs which are on all types except the trailers. Plastic horn type couplers are furnished for all cars. In addition, the trailers have a brass drawbar, like the wireless drawbar used on steam-type engines. This per-

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Without oiling or any other preparations, the motor car used for testing ran well and at a low enough speed for rapid transit operation. This is not surprising in an already proven drive.

For the city planner who might feel reluctant to use foreign prototype equipment, it should be noted that these cars are not especially "foreign" looking. The requirements of transit operation seem to dictate appearance more than do national boundaries. Not very many years ago, one of our "transit-sized" cities in the market for new rapid transit cars received an unsolicited bid from Japan! Presumably they were the low bidder although a U.S. firm ultimately received the contract. Toronto's first lots of modern subway cars were built in Britain. Anyway these models offer some interesting possibilities at reasonably good prices. Motor cars are priced at \$19.50; trailers are \$10.50.

Freight Station: HO

Mfd. by Vicount Model Railroad Products Co., P.O. Box 42, South Station, Yonkers, N.Y. 10705.

Freight Station No. 1 is a die cut card stock kit. Brick walls, doors, chimneys, platforms, are all nicely printed and die cut. Printed acetate windows, wood posts, and black card for the roof round out the components.

The instruction sheet with drawings should be studied carefully prior to assembly and all parts identified. Most of the parts, except for small items such as chimney caps, are identified by a letter.

The die cutting is clean and sharp but we'd recommend using a good sharp-bladed modeler's knife for cutting the few tabs, to assure good clean punching out of parts.

An acetate cement such as Ambroid is recommended for assembly, providing fast drying with maximum adhesion. It is advisable to use corner pieces inside and some are furnished. The long platforms would also be sturdier if braced with wooden strips underneath. A hole is provided under the model for interior illumination if desired.

This freight station is adaptable to a variety of different situations. As built, it accommodates three sidings, two of which are separated by a loading platform. The depot measures 52x128 scale feet overall, with platforms.

Some modelers might like to super detail the model, using basswood strips cemented on top of the cardboard "wood." This kit is especially recommended for beginners, those who like quickie kits, and those who still prefer cardboard kits. The freight station is essentially identical with the kit formerly produced by Westchester Models. Other Westchester kits, including the roundhouse, are also available.

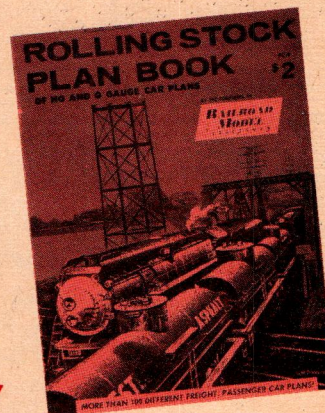
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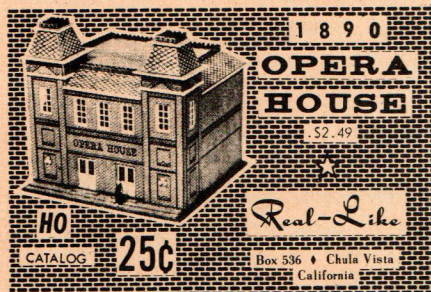
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City Modeling in Little Space

A.P.: I live in the city in a crowded apartment and want to build a small railroad serving a big city, but city buildings take up too much room. Any suggestions?

ANSWER: If you build the pike against 1, 2, or 3 walls; you can use either painted scenic backdrops of city skyscrapers or dimensional flats, or buildings which have only an inch or two of actual depth and are placed against the wall.

30-Inch Gauge Pikes

D.M. and others: More info please on 2½' pikes as modeled by Associated Hobby Manufacturers, Egger-Bahn, etc.

ANSWER: Narrow gauge railroads of less than 36 inch gauge were found

scattered throughout the country. Some plantation roads of 30 inch gauge, meter gauge, or similar small gauges still exist in a few parts of the U. S., Puerto Rico, Mexico, and other Latin American countries.

Locos traditionally were small 4-wheel types on the plantation and industrial pikes, steam or diesel. Cars were also small 4-wheel types used for carrying sugar cane or other crops, ore, gravel, and similar commodities.

T small gauge pikes could and did also have larger equipment used for hauling freight and passengers in equipment not unlike that found on larger railroads. Few such pikes were able to survive the arrival of the automobile age.

Neoprene Tires

S.H.: Can neoprene tires on locomotive drivers, intended to increase traction, be replaced? How else can I increase traction?

ANSWER: Replacement driver sets should be available at your dealer as spare parts. I am not aware of spare bands, alone, being available, but your dealer could inquire of the engine's maker.

Possibly one of the substances sold for increasing slot race car tire traction would work on engines, but I've not tried it.

Preventing Drills From Breaking

R.S.: Is there any way to prevent my breaking the small drills used in model work?

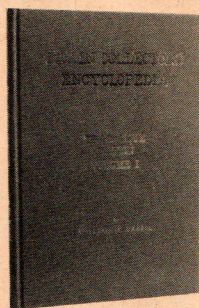
ANSWER: Use a pin vise, not a hand drill. Beyond that, use care not to press too hard and to clean the bit regularly. Practice also provides the skill needed to cut down on breakage. Even the experts keep a stock of extra drills on hand. Its also possible to regrind the points sometimes, when only a tip breaks off, thus extending the life of the drill.

Couplers, Link & Pin

H.P.: Where can I get link and pin couplers for old time HO trains?

ANSWER: Model Engineering Works lists link and pin couplers for HO, which may also be suitable for some larger scale narrow gauge uses. Check your dealer or their catalog. These are not automatic.

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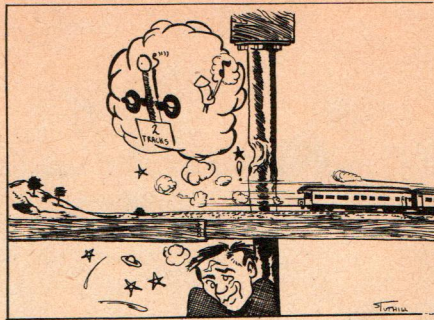
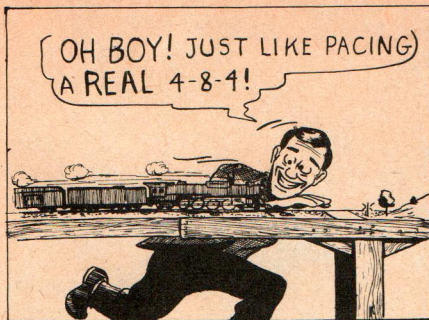
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Lubricating Drill Bits

T.C.: Don't many people say that one should lubricate the bits regularly when drilling.

ANSWER: For the small drills and work used in model railroading, lubrication is not normally necessary. But if you wish, a bit of light machine oil or even saliva can be used.

Steam Locos In Operation

C.G.: Where can I find real steam locomotives in operation this summer on my vacation?

ANSWER: Here's a partial list of railroads and operating museum railroads scattered around the U.S. and Canada. Most can be expected to operate steam equipment during the 1966 summer season and into the fall. The list is not complete:

- Edaville RR (2 ft.)
South Carver, Mass.
- Steamtown, U.S.A.
Bellows Falls, Vt.
- Mt. Washington Cog Ry.
Mt. Washington, N. H.
- Empire State Ry. Museum
Middletown, N. Y.
- Pine Creek RR (3 ft.)
Bellayre State Pk., N. J.
- Wanamaker, Kemtron & Southern
RR, Kempton, Pa.
- Strasburg RR
Strasburg, Pa.
- East Broad Top RR (3 ft.)
Mt. Union, Pa.
- Cass Scenic RR
Cass, West Virginia
- Gold Coast RR
So. Miami, Florida
- Carroll Park & Western RR
Bloomsburg, Pa.
- Marquette & Huron Mtn. RR
Marquette, Mich.
- Mid-Continent Ry.
North Freedom, Wis.
- National RR Museum
Green Bay, Wis.
- Denver & Rio Grande Western
Ry. (3 ft.), Durango, Calif.
- Knotts Berry Farm (3 ft.)
Buena Park, Calif.
- Disneyland (3 ft.)
Disneyland, California
- Cowichan Forest Museum (3 ft.)
Duncan, Vancouver Is., B. C.

A few trolley museums also own and occasionally operate steam locomotives. A few railroads still own and operate steam locomotives. Discontinued in 1966 are the Reading

steam rambles. Steam locomotives are also on display at a number of locations, in addition to those named above: Ford Museum at Dearborn, Mich.; Museum of Transport, St. Louis, Mo.; Horseshoe Curve, Pa.; Cheyenne, Wyo.; Sacramento, Calif.; Milwaukee, Wis.; Golden and Alamosa, Colorado; Vancouver, B. C.; Smithsonian Inst., D. C.; Franklin Inst., Phila.; and others.

Cutting Styrene Plastic

C.C.: What is the best way to cut styrene plastic?

ANSWER: Score the surface where you want the cut with a sharp knife and then bend the plastic until it snaps.

J - C Passenger Cars In O Scale

J. R.: I have some old J-C passenger cars whose sides are now badly warped. The cars are in good shape but I need new sides. Are they still available? These are O scale.

ANSWER: Replacement sides are available from All-Nation Line, P.O. Box 145, Des Plaines, Illinois. Their new catalog lists at \$1.00 and is strictly O scale. Passenger car sides are also available from William K. Walters, Inc., 1245 N. Water Et., Milwaukee, Wis. 53202, and they also have an O scale catalog at \$1.00.

Single Wheelers

J. K.: In my collection of engines showing all available wheel arrangements, I would like to get an operating 4-2-2 such as the "Stirling Single" formerly available from Kitmaster in plastic. Can you suggest where one may be obtained?

ANSWER: The British "proprietary" (we'd call it RTR) firm of Tri-Ang a few years ago sold in OO scale, for HO track, a smooth running Stirling Single 4-2-2 in metal and plastic. More recently they have sold a similar Caledonian Ry. single-wheeler. As to where they may be obtained in this country, I'd suggest Polks in New York or Chester Holley in Tampa, Fla., both firms having more exotic trains than the average hobby shops.

How about an 0-2-2? "The Rocket," Stephenson's first locomotive, was also recently made by Tri-Ang, and also will be available soon in brass, made in Japan.

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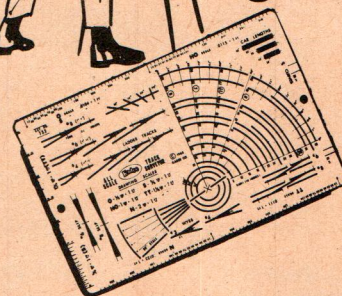
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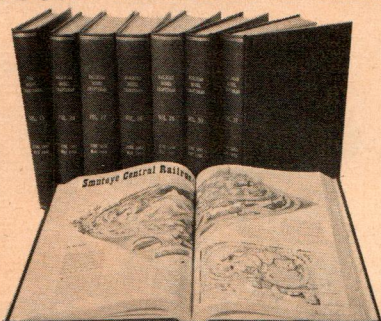
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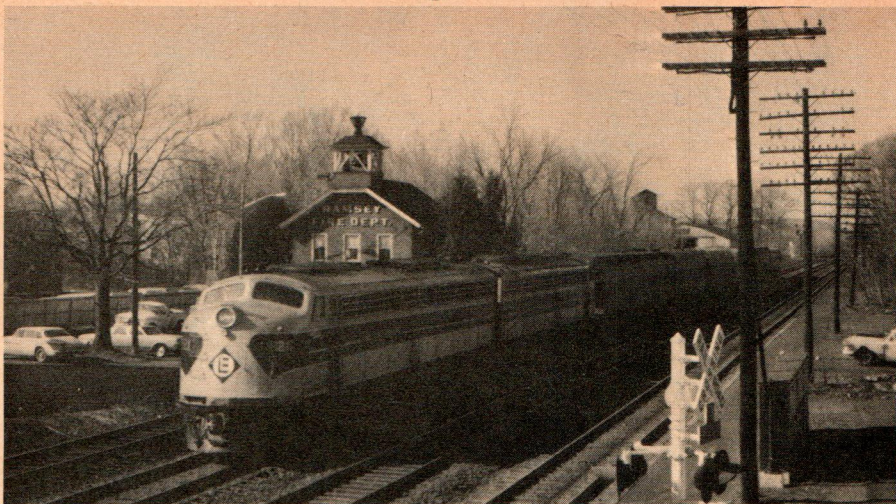
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Of Things To Come?



Erie-Lackawanna E-8A, 821 with mate, roar through Ramsey, N. J., past the RMC editorial offices, with a consist which included 2 Erie-Lackawanna business cars, a Norfolk & Western business car, a Wabash business car, and a Chesapeake & Ohio inspection car on the rear, plus one or two other cars unidentified as the train roared by. Purpose: possible merger of the E-L into N&W system?

Couplers, Tomlinson

G.K.: Where can I get Tomlinson couplers for traction equipment?

ANSWER: Try Model Tramway System for Tomlinson couplers, which are not automatic.

HO Baseball Players

W.S.: I want to add a sand lot baseball team to my HO layout. I have everything but the players.

ANSWER: No baseball players are offered at this time, but Preiser, Selley, and AHM, among others, offer figures which could be modified. And if you can find a Weston Flexible Freddie, he could also join the team.

Lost Loco Springs

C.N.: My friend and I dare not disassemble our brass locos for a thorough painting for fear of losing the little coil springs. Where can we get replacements?

ANSWER: Your PFM dealer should have or be able to get United's loco springs, which happily fit most other makes. Tenshodo springs are also available, slightly larger in size and slightly softer. Its a good idea to keep a dozen or so on hand. In an emergency, a small piece of balsa or wadded paper may be put above the bearing and mashed down when you tighten the retainer plate. You'll lose the spring action until you can replace the spring later on, but the engine will be serviceable.

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V.G. Your review of train sets in Dec. '65 RMC says that Tri-Ang trains, American style, will run better on their own track and switches than on NMRA standards trackage. Since I have a big collection of Tri-Ang and plan to use NMRA trackage, I'd appreciate knowing the basis for this statement before I build a layout incompatible with my trains.

ANSWER: Tri-Ang wheels have a closer back-to-back spacing than NMRA standard wheels, in addition to a thicker, deeper flange; all of which would tend to cause troubles whenever you'd go bumping over switches and crossings. Wheel conversion would eliminate the problem.

The American NMRA standards and recommended practices are a very remarkable and workable guideline for most modelers, permitting a very wide variation in many instances beyond NMRA recommendations. But, ultimately there are limits beyond which you can expect problems in operation.

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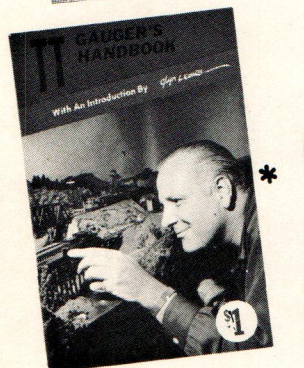
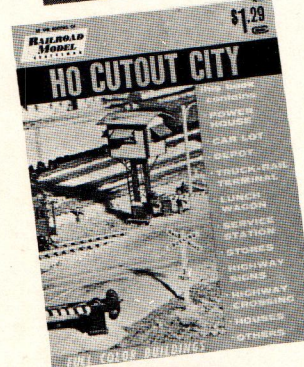
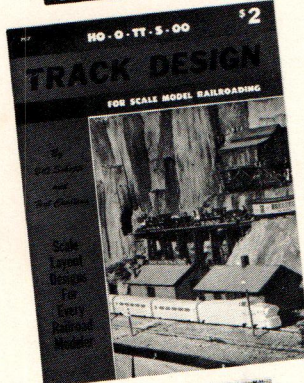
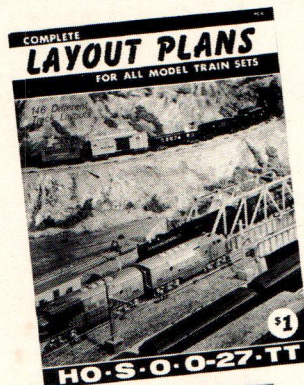
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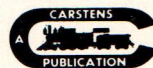
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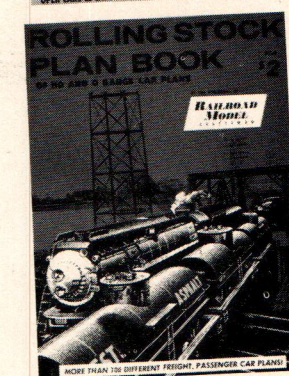
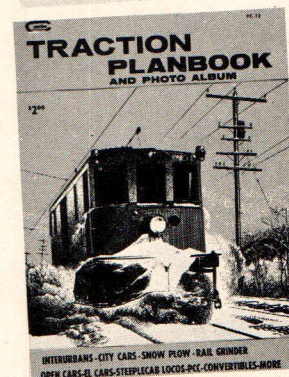
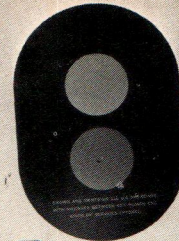
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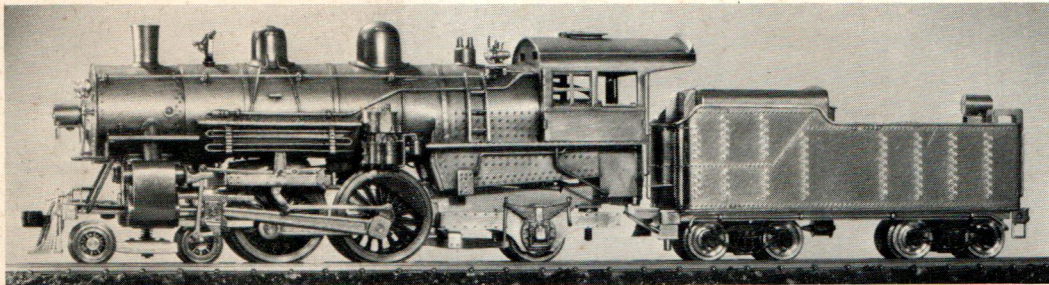


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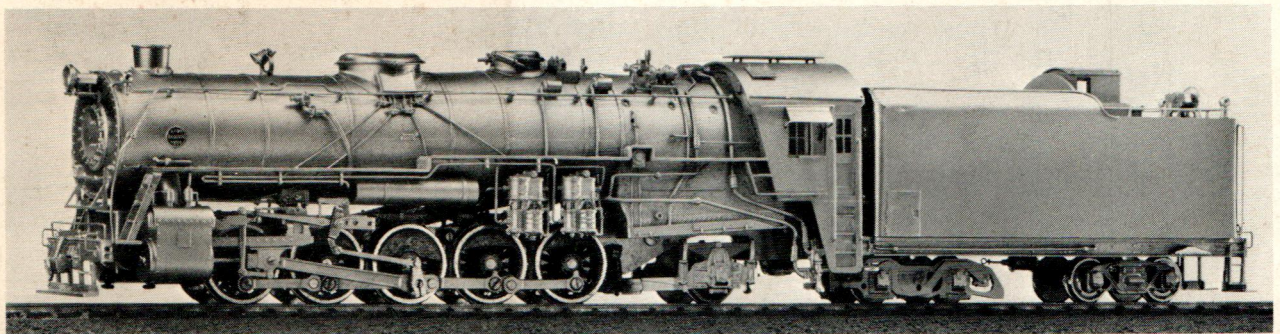
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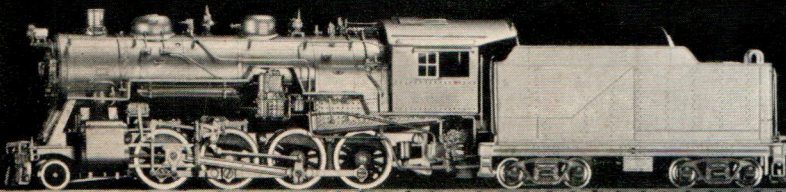
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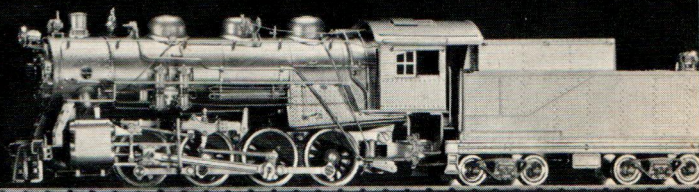
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